SPRING 1984

NAVY CIVIL Engineer

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New floating pier design Page 2

Navy cleans up oil site Page 11

Chicken feathers soak up oil spills Page 16

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LCDR Mike Berry, CEC, USN
NAVFAC, Code 09MA1
200 Stovall Street
Alexandria, VA 22332
Phone (202) 694-3635
AV 224-3635

LTJG Scott Weikert, CEC, USN
NAVFAC, NORTHDIV, Code 09R
Philadelphia, PA 19112
Phone (215) 897-6488
AV 443-6488

LT Charlie Khan, CEC, USN
NAVFAC, LANTDIV, Code 09B1
Norfolk, VA 23511
Phone (804) 444-9529
AV 690-9529

LT Bob King, CEC, USN
NAVFAC, SOUTHDIV, Code 09F
P.O. Box 10068,
Charleston, SC 29411
Phone (803) 743-3014
AV 794-3014

LCDR Joe Zorica, CEC, USN
NAVFAC, WESTDIV, Code 09B1
P.O. Box 727,
San Bruno, CA 94066
Phone (415) 877-7491
AV 859-7491

LT Charles Gorum, CEC, USN
Naval School, Civil
Engineer Corps Officers
Port Hueneme, CA 93043
Phone (805) 982-5655
AV 360-5655

LT Quentin Bruhn, CEC, USN
NAVFAC, PACDIV
Pearl Harbor, HI 96860
Phone (808) 471-8471
AV 315-8471

THE COVER

Sometimes engineers have to be more than just "engineers." Sometimes their responsibilities take them beyond the realm of their trade and they must become administrators and managers — even diplomats. Cdr. Kenneth W. Meeks of NAVFAC HQ has described some of the requirements and pitfalls of being involved in negotiations with a foreign country — in this case — Korea. The article may be found on page 19 and is illustrated very aptly by Bill Brack who also did the cartoon artwork on the cover.

NAVY CIVIL Engineer

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WILLIAM M. ZOBEL
Rear Admiral, CEC, USN
Commander
and
Chief of Civil Engineers
JOHN PAUL JONES, JR.
Rear Admiral, CEC, USN
Vice Commander
and
Deputy Chief of Civil Engineers

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LES HELSDON
Editor
BILLYE GRYMWADE
Associate Editor
JOY ARDALAN
Artist
APRIL SAIPALE
Distribution
CONTRIBUTORS
Bill Brack — Artist

Floating pier design favored by NCEL to meet today's stringent needs

By Jerry Thomas

Many Navy piers constructed during and immediately after World War II, to support the fleet, are becoming increasingly incapable of responding adequately to the needs of today's modern naval ships with their sophisticated electronics and advanced propulsion systems.

The average age of active ships is 15 years. Conversely, the average age of Navy port facilities is 35 years and increasing. The gap between the fleet's more stringent requirements for shore support and the capabilities of aging port services to meet those needs continues to widen.

The Navy is committed to closing that gap. Gone are the days when piers were considered only as places "to park and go cold iron." The Navy knows that it must develop new pier designs which provide active working platforms to adequately support ship maintenance, operational checks and training, and refit functions.

The Naval Civil Engineering Laboratory (NCEL), Port Hueneme, Calif., is a leading investigator of innovative pier designs for surface combatant ships (frigates, destroyers and cruisers). It has completed two comprehensive studies to generate new design ideas and to influence pier construction of tomorrow. One futuristic concept — a floating pier — was developed under contract. The other new design — a function-formed pier — was also developed under contract.

The Laboratory's effort to improve pier designs and thereby improve shore support is sponsored by the Naval Facilities Engineering Command (NAVFAC). The task is part of the Naval Facilities Systems Project, guided by a Navy decision "to acquire, operate and maintain piers which are cost effective and responsive to changing user (new ships') requirements."

Duane Davis, NCEL project engineer, said the first steps taken were to 1) identify ship requirements, 2) analyze current deficiencies and problem areas, and 3) develop design criteria.

Both NCEL pier proposals incorporate the shore services that will meet the requirements of Navy ships through the 1990s. The Laboratory favors the floating pier concept because of the many advantages it has over any pile-supported concept.

NCEL's conceptual design calls for a double-deck floating pier, 1200 feet long and 75 feet wide. It can be constructed of two 600-foot modules at an offsite construction yard, and then floated into place. The main, upper deck stands 20 feet above the water line. It contains cargo stairwells, electrical service outlets, and trash wells. Otherwise, it provides the clear deck required by the fleet. The lower deck has space for electrical substations, waste holding tanks,

The artist's drawing above depicts the floating pier design developed by the Naval Civil Engineering Laboratory. The double-deck concept features a 20-foot top deck (above waterline), at an elevation closer to the quarter deck of a modern ship.

vehicle traffic, storage, and solid waste containers.

The concept is within current design and construction state-of-the-art. The state of Washington has three floating bridges, one built more than 40 years ago. The longest is 1.6 miles. In Valdez, Alaska, a commercial floating concrete module pier serves as a container terminal. The pier is 700 feet long and 100 feet wide. The NCEL design includes a major utilities system, a requisite of all Navy port facilities; the Valdez pier does not offer this capability.

The NCEL concept also includes the pier's structural system, fender system, anchoring system, and construction methods.

Davis cited the following advantages of a floating pier:

- On-site construction time is reduced because only 58 anchoring piles are driven. A conventional pile-supported pier requires hundreds of piles. As the pier modules are constructed offsite and floated into place, significant time is saved. Replacing a fixed pier with another fixed pier requires at least 18 months, but out-of-service time could be decreased by 12 months if a floating pier were installed.
- Since the pier rises and falls with the tide, its elevation remains constant. Restraining lines do not require constant tending and utility lines can be shorter.
- A modern fender system contacts the ship at the water line and remains constantly in position because the pier and the ship move together with the tide. Fender piles and camels (floating fenders) are eliminated, greatly reducing pier maintenance costs.
- A floating pier is an ideal concept for two-deck configuration. Two decks provide more flexibility and responsive service than does a wider, conventional single-deck pier. Also, pier functions can be separated efficiently.
- The design is adaptable to a wide range of site conditions. For typical sites, guide/restraining piles are located along the pier centerline. For sites with atypical conditions, other types of mooring/restraining systems can be used.
- The pier modules can be towed to a new site and reinstalled if the need justifies the expense. Prior to relocation, the guide piles are removed, the ramps and utility lines disconnected.
- The design offers significantly better protection from earthquakes than a fixed pier.

Three basic construction methods are applicable for building a floating pier: on-land construction which involves using a flood basin, graving basin, dry docks, or launch ways; barge-mounted construction of pier sections; and the novel floating form method in which the pier is built while afloat.

The Laboratory's development of new pier concepts has been influenced by recommendations emanating from a 1981 Navywide workshop on "Pier Designs for Fleets of the 1990's and Beyond." The NAVFAC/NCEL study group reviewed and evaluated a cross-section of fleet requirements, problems, priorities, and proposals. The workshop structured definitive guidance for NCEL in its concept design efforts.

As appropriate, products of the efforts will be provided to NAVFAC's engineering divisions for use in near-term, new construction projects. A second phase is the development of longer range designs for future pier facilities. As work progresses, a continuing dialogue will be maintained with the fleet to obtain user review, and evaluation, of criteria, proposed concepts.

Data and findings published in the workshop proceedings have proven timely and valuable to engineers at NAVFAC's Southern Division in the design of a new combatant ship pier at the Naval Station, Charleston, South Carolina. In fact, the workshop has recommended that Charleston be used as "the initial test bed for new near-term conceptual designs."

Davis said future project plans call for the Laboratory to conduct cost-benefit studies of the floating pier concept to demonstrate its economic feasibility and operational advantages. A second workshop, scheduled for next summer, will review and critique pier designs generated by NCEL and NAVFAC field divisions.

The Laboratory expects to publish a summary of pier design concepts early next year. Revisions to the document will be made when various concepts are expanded. □

Design Conference held in March

The Navy is committed to the development of improved piers, designed to serve the fleet into the 21st century.

With that goal in mind, approximately 50 military and civilian representatives from agencies concerned with the Navy's Port Systems Project attended a three-day conference ending in March at Port Hueneme, Calif.

Sponsored by the Naval Civil Engineering Laboratory (NCEL), Port Hueneme, the Pier Design Conference enabled participants to present and discuss new pier designs and to develop strategies to implement favorable designs.

Navy piers rapidly are becoming inadequate to meet increasing demands of the Navy's modern ships. Conference members are aware that the gap continues to widen between the fleet's more stringent requirements for shore support and the capabilities of aging port services.

Following two days of discussions and critiques, the conference was divided into two independent groups, each with an expressed purpose. One group concentrated on the development of formal evaluations of new design concepts, suggested changes, and proposed recommendations for additional pier design project work. The other group was responsible for developing strategies for implementing new pier designs.

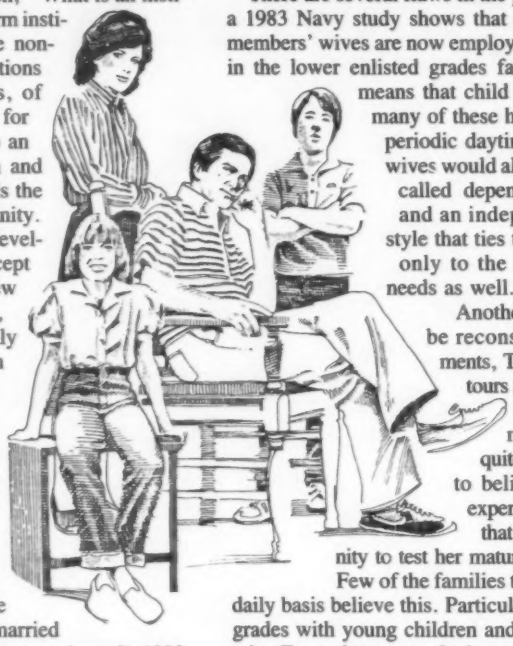
Duane Davis, NCEL engineer and conference moderator, said design handbooks, phase maintenance requirements, and criteria needed by designers will evolve from post-conference evaluations and suggestions.

Conference participants represented a wide spectrum of Navy interests including the Naval Facilities Engineering Command and its Engineering Field Divisions, the Atlantic and Pacific Fleets, port service operations, staff engineers from five naval stations, Public Works Centers, engineers-in-charge of three new pier design projects, and NCEL.

Family Service Centers enhance the quality of life for Navy Families

By JOHN K. KELLY, Ph.D.
Deputy Director, Family Service Center, CBC, Gulfport, Miss.

The family, many say, is the toughest social institution we have. The reader might ask the question, "What is an institution?" Sociologists tend to use the term institution slightly different than does the non-social scientist. Sociologists see institutions as systems of social norms. Norms, of course, are societies' rules of conduct for the members. An institution refers to an organized procedure, a definite form and way of doing something. The family is the institution to which we owe our humanity.



Our society knows no other way of developing or socializing human beings except by bringing them up in a family. Few institutions have received the critique, criticism and recognition of the family system. It has been labeled the solution to most problems on one hand, and to be the basic cause of problems on the other. It has been looked upon with hope and dismay, yet this institution called the family has been, and still is, subjected to constant and massive change.

In this respect, the Navy family has been without exception. Consider the current demographic profile of the Navy community. The total married force comprises 55% of all Navy service members. In 1983, there were 8,238 families with both spouses in the military (16,476 service members). The same study showed that there were 5,100 single Navy parents with custody of their children, while approximately 84,000 single parents were created when its units were deployed throughout the world.

The military is now a community of families of one kind or another and the service members' families are the largest single determinant of whether the member re-enlists. Concomitant with the rising concern over retention, the Navy is very much concerned about the effects of recent trends in the structure of the family.

No longer do many of these families fit into the traditional mode of military husband, dependent homemaker-wife and children. Contemporary trends in marriage, divorce, single parenthood, dual career patterns and voluntary childlessness are reflected in the military families today. These familites are also influenced by many of the same strains as other American families.

When considering military families and their needs, several prevailing assumptions about these families should be put to rest. First of all, cast out the presumption of the typical military member husband with a dependent wife and children who are home dutifully taking care of the domestic responsibilities while he goes off to sea.

There are several flaws in the picture. First and foremost, a 1983 Navy study shows that more than 50% of service members' wives are now employed. Nearly three out of four in the lower enlisted grades fall into this category. This means that child care is now a necessity in many of these homes, not just a luxury for periodic daytime outings. Many of these wives would also reject the notion of being called dependents. They have careers and an independent non-military lifestyle that ties them to their husband's job only to the extent that it meets their needs as well.

Another assumption that needs to be reconsidered is that the deployments, TDY assignments and remote tours are really not that stressful on family relations and that most families adjust to this quite easily. Many civilians tend to believe that these are growth experiences for the families and that it gives the wife the opportunity to test her maturity and independence.

Few of the families the writer counsels with on a daily basis believe this. Particularly if they are in lower pay grades with young children and have second jobs to maintain. Even short-term deployments are extremely stressful on family relationships and family members left behind.

Families today are much more interdependent than ever before. The roles of husbands and wives are not as distinctively separate as they once were. This has given families more importance in terms of emotional support, but at the same time, has increased family fragility when these emotional support systems are taken away or inconsistently provided.

Military leaders must be aware of this change in the cultural tide and take it into consideration when making manpower and personnel decisions. Leaders, who today make decisions based on the assumption that we will return to "the father knows best" mentality are probably in for a rude awakening. This quotation was taken from a Navy-sponsored study, and tends to put things in perspective:

> **"How the Navy responds to current demographic trends will increase its ability to attract and retain qualified personnel. Conflicts between the family system and the Navy system are inevitable unless the needs of Navy persons and their families are met. The psychological, social, career and spiritual needs of Navy members and their families must be**

continually reassessed if Navy policies, programs and services are to maintain the necessary fluency for maximum effectiveness."

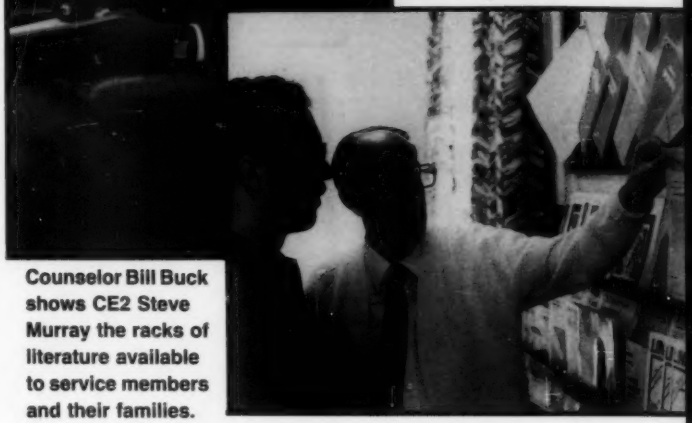
Today's Navy is more equipped than ever before to deal with these changes in the family structure. As a result of the 1978 Navy Family Awareness Conference at Norfolk, Virginia, the Chief of Naval Operations established a network of Family Service Centers to enhance and enrich the quality of life for Navy personnel and their families.

Family Service Centers assist both single and married personnel in solving problems, dealing with red tape, obtaining assistance in finding the resources available to them in the military as well as the civilian communities. The Family Service Center at CBC Gulfport is a part of a network of 61 other Family Service Centers located throughout the world.

Captain R. E. Hughes, USN, Director of the Gulfport Family Service Center and his staff recognize that families are mission essential. The FSC perceives its role of providing service members and their families with a ready support system. It recognizes that families who feel abused or neglected can strain service members' commitments and put pressure on them to find more attractive alternatives.

We are committed to the well being of all members of the Navy family, servicemembers, their dependents, retirees and survivors located in the Mississippi Gulf Coast. □

Dr. John Kelly, deputy director of the Center, counsels one of the many clients he sees daily.



Counselor Bill Buck shows CE2 Steve Murray the racks of literature available to service members and their families.

What you should know about

Service Contract Options

By LCDR DENNIS J. LEE, CEC, USN
P.E., Calif.

The Naval Facilities Engineering Command (NAVFAC) annually awards over $200 million worth of maintenance service contracts. Many of these maintenance service contracts contain a provision which allows the contracting officer the right to renew the contract with the incumbent contractor upon expiration of the contract. The "option to extend" provision, as it is called, is welcomed by both the contracting officer and public works officer alike. The contracting officer benefits from having to award fewer contracts annually and the public works officer sees it as a way to maintain some semblance of continuity in the delivery of services. Just imagine what would happen if, each year, an activity had to orient new service contractors to the base and adjust to the disruptive influences of turnover in contractor personnel. It would be chaos!

Focus attention on the various aspects associated with renewal of a maintenance service contract as practiced by NAVFAC. It is not a straightforward matter as it may seem and can best be compared to the annual ritual of filling out the Internal Revenue Service income tax form. Both require the keeping of good records, knowledge of the rules and regulations and timely completion. If it is done incorrectly, it almost always results in overpayment to the contractor. Auditors do not like to see that happen.

NAVFAC's contracting procedures, as published in NAVFAC P-68, are derived from the Defense Acquisition Regulations (DAR). DAR 101502(e) allows service contracts to be extended up to a total of five years — initial base year plus four option years. It is NAVFAC's policy, however, that routine maintenance service contracts can be extended up to a total of three years. Only under special circumstances has the use of the five year option been granted. The reason for this will become apparent later on when we discuss price adjustments.

As is written, the standard renewal clause for maintenance service contracts grants the contracting officer the right to decide whether or not to extend the contract, however, there is one catch. The contracting officer must give advance notice to the contractor that the contract will be extended for another contract term. This notification must be given in writing at least 60 days before the expiration of the contract.

If the contracting officer fails to comply with this notification requirement, the contractor is essentially released from his contractual obligations and can refuse to accept the contract option.

(continued from page 5)

Therefore, the contracting officer must obtain, as early as possible, feedback from the public works officer as to whether or not to exercise the extension. It is not a wise course of action for the public works officer to wait until the last moment to make a decision.

The incumbent contractor may be a poor performer and it would be preposterous to reward him with a contract for another contract term. Under such circumstances, it would be prudent to readvertise the contract, but unfortunately, readvertisement takes more than 60 days to implement.

If the public works officer fails to plan properly, he is left with little recourse but to request renewal of the contract. To avoid such a predicament, the public works officer should decide on renewal when six months of the contract have elapsed. If the answer is negative, the contracting officer has plenty of time left to prepare for readvertisement.

Most maintenance service contracts are extended for another year, the most common contract term. However, there are times when it is not desirable to extend a contract for an entire year. For example, the contracting officer may have elected to readvertise the contract rather than to pick up the option but is experiencing delays in awarding the new contract due to a bidder's protest.

Since the existing contract is nearing expiration, the contracting officer would like to extend the contract with the incumbent contractor for only a few months until the protest is resolved and he can proceed with the award.

To handle such a situation, NAVFAC has introduced a new clause (see NAVFAC Code 02 Speedletter of 2 Dec 81) which, when inserted into a contract, allows the contracting officer the flexibility of extending a contract for less than a one-year period.

A contractor who is awarded a maintenance service contract under a firm-fixed price arrangement is allowed to adjust his contract price for the option year in accordance with the price adjustment clause in DAR-7-1905(b). Basically, this clause allows for adjustments only in direct labor costs as a result of the issuance of a new Service Contract Act Wage Determination by the Department of Labor.

The Department of Labor is required to issue a new Wage Determination with each contract renewal. The contracting officer notifies the Department of Labor of an impending contract renewal by submitting a Standard Form 98 "Notice of Intention to Make a Service Contract and Response to Notice" at least 60 days before expiration of the contract.

If the contractor's employees are unionized, a copy of the prevailing collective bargaining agreement must also accompany the Standard Form 98. No matter how valid the justifications are, there are *no* adjustments allowed for increases in contractor's costs related to supplies, materials, equipment, overhead and profit. It should be noted that a different adjustment policy may be applicable in overseas countries.

No wonder NAVFAC places a three-year limit on contract extensions. In inflationary times, a contractor's profit can be severely eroded from receiving additional compensation for only increases in direct labor costs. Placed in such a predicament, a contractor may be motivated to cut corners in the delivery of services.

To alleviate such problems, some contracting officers have resorted to the use of pre-priced options to allow contractors to recover cost increases for items other than direct labor. Under the concept of pre-priced options, the contractor is permitted to submit a bid price for each of the option years rather than for just the first year.

Any anticipated cost increases can thus be included in each option year. After contract award, the contractor is also allowed to adjust his bid price at the beginning of each option year to reflect changes in direct labor costs as dictated by the issuance of a new Service Contract Act Wage Determination.

In calculating the allowable adjustments in direct labor costs for a particular contract, the contracting officer must secure information on the following:

a. Classification of various contractor employees

b. Total direct manhours expended on contract for each classification

c. Current wage rate and fringe benefits being paid to employees for each classification

d. New wage rate and fringe benefits to be paid to employees for each classification

e. Actual scope of work for upcoming option year. Are contract modifications issued during the current year to be continued under the option year?

The contracting officer relies, to a great extent, on the inspectors (new term is "quality assurance evaluators") to provide or verify information on direct manhours expended and employee wages and fringes being paid. This information should be collected and documented during the life of the contract as the quality assurance evaluators are conducting their surveillance visits.

The contracting officer must also reach an understanding with the public works officer as to the extent of any changes in the scope of work for the option year. When the new wage determination is received from the Department of Labor, the contracting officer is able to compute the amount of adjustment.

The process is not an exact science, but involves some guesswork and estimating. The contracting officer never truly knows the direct manhours actually expended. Some negotiation is involved with the contractor to arrive at a new contract price for the option year.

The most common mistakes made in computing the new contract price follow:

a. The increase in direct labor costs is computed from just the information shown on the old and new Wage Determinations. The increase should be computed as the difference between what is shown on the new Wage Determination and what the contract employees are currently receiving and *not* the difference between what is shown on the new and old Wage Determinations.

b. The percent increase in direct labor costs is applied to the entire contract price rather than just the portion associated with direct labor.

c. The adjustment of the superintendent's salary. Superintendent's salary should be treated as overhead and not as direct labor. Overhead costs are not allowed to be adjusted.

d. The failure to properly extend contract modification work over the entire option year.

In conclusion, the practice of renewing a maintenance service contract appears to be uncomplicated at first glance.

There are some fine points that, however, if not well understood, can easily result in overpayment to the contractor. Errors can be avoided by properly training personnel and establishing a systematic process to gather the necessary information at the outset of the contract. □

news worth reviewing

departments

Carter Ward: Engineer-of-Year

Dr. Carter Ward, senior research engineer at the Naval Civil Engineering Laboratory, Port Hueneme, Calif., has been named winner of the Naval Facilities Engineering Command's Engineer-of-the-Year Award. This makes the second consecutive year an NCEL engineer has captured the award. The selection automatically places Dr. Ward's name in competition for the National Society of Professional Engineer's Federal-Engineer-of-the-Year Award.

PWC Pensacola wins for productivity

Public Works Center (PWC), Pensacola, Fla., was one of the eight winners of the 1983 Chief of Naval Material Productivity Excellence Awards. The award is presented annually to activities that have demonstrated creative problem solving techniques and have found better methods for performing industrial-type tasks. This is the second consecutive year that PWC Pensacola has received the award.

Hybrid energy systems being researched

The Navy is investigating hybrid energy systems, predicated on a new technology, to reduce its dependence on imported fossil fuels at shore activities.

A small underwater systems research laboratory at Tudor Hill, Bermuda, will soon become the Navy's showcase for demonstrating the effectiveness of hybrid systems integrating wind and photovoltaic (PV) energy systems technology.

The venture is a joint effort between the Departments of the Navy and Energy. Dharam Pal, wind energy expert at NCEL, Port Hueneme, Calif., said the Tudor Hill demonstration will be the federal government's first operational hybrid system. "Our primary objective at Tudor Hill," Pal said, "is to develop a new technology base for use in designing hybrid systems for Navy-wide applications."

The philosophy behind the Navy's thrust toward hybrid energy systems technology is to reduce consumption of fossil fuels at Naval activities ashore by shifting to renewable energy sources. This shift would permit the Navy to increase fossil fuel reserves marked for the fleet—almost an imperative in view of the programmed build-up toward a 600-ship fleet.

Capt. Montoya gets education award

An award honoring his personal contributions towards the improvement of quality education in San Diego was presented to Captain Benjamin Montoya, CO of the Navy Public Works Center, San Diego, by the Greater San Diego Industry-Education Council (GSDIEC).

The only naval officer to receive the 1984 GSDIEC award, Captain Montoya's selection was based on his active participation in the San Diego City Schools Maintenance Advisory Task Force in 1982-83.

E03 Dick King enters Guinness Book of Records

Equipment Operator Third Class Richard C. King of NMCB-62 marked his name in the Guinness Book of World Records by becoming the first person ever to bowl continuously for 168 hours, 25 minutes, surpassing the old mark set by an Army man in Germany by 12 hours.

"I wanted to show people that Seabees do more than just build bridges," said an exhausted King at the end of his event.

The 35-year-old Seabee said that once he found out that an Army sergeant had set the last record, he "couldn't let that happen, no way."

King set the new record at the Seabee Base's bowling alley, beginning his test of endurance at noon, Feb. 7, and rolled his last ball one week and 25 minutes later.

Under the requirements set by Guinness, the ball had to weigh 16 lbs., and the bowler would receive a five-minute break for every hour completed.

King began preparing for the event in September by bowling 100 games a week. His marathon was sponsored by numerous local businesses, pledges and donations. All proceeds went to the Navy Relief Fund and the Center's Youth Activities Division.

King, from Detroit, Mich., was not alone in his efforts. He had a crew of 10 volunteers who aided him, working on two shifts. "I couldn't have made it without the total support of the Seabee Center, my command and especially these guys," King said thankfully.

Under the support of his division officer, Chief Warrant Officer William Racz, King was able to be spared time off, which counted as leave of absence. "I didn't mind taking leave," he said.

When his record was actually set at 20 minutes past midnight, on Valentine's Day, King could have quit, but he felt he should beat the old record by at least 12 hours.

His average for the duration was 138. He bowled his highest game after four days of play, racking in a 276. His highest lefthanded game was a clean 197, earned after two days of play.

King went through 24 pairs of socks, threw 11,287 balls, 1,080 strikes, 601 games, with a total accumulative score of 83,228.

Kids from the Seabee Center's Child Care Center presented King (center) with the "Good Luck" poster seen in the background.

Surveyors: filling the experience gap

By EA1 George F. Walter, USN
Naval Construction Training Center
Gulfport, Miss.

It's 6 a.m. on the morning of Oct. 4, in the hills of Bavaria in Germany. The tent flaps are opening and the 10-man survey crew is starting to stir; the last watch has already put a pot of water on the fire for coffee and a bucket of water to wash mess gear. The crew's assignment is to develop a plot plan for a new helo field at dawn. They have three days to complete the field work. This was the scenario given to Engineering Aide (EA) "A" class 83007 at Camp Shelby, Mississippi, during their field training phase of topographic surveying.

The instructors at the Naval Construction Training Center (NAVCONSTRACEN), Gulfport, were faced with a problem: how do you develop a good appreciation of topographic surveying in the present training area of 500 foot square with an approximate 4' change in elevation to an "A" school student.

The solution recently tried was to move the class to the Army Training Center at Camp Shelby, Mississippi, for the topographic surveying phase. The students would draw 782 gear from the 20th Naval Construction Regiment, live in shelter halves, and subsist on "C" rations while bivouacked for four days.

The area provided to the students was approximately 50 acres of wooded land with over 70' changes in elevation. With its varied terrain features, the site was an ideal location for this type of training.

On Monday Oct. 3, two trucks laden with 10 students, three instructors, and equipment departed NAVCONSTRACEN and arrived on site 1-1/2 hours later. The first day involved establishing a camp and work area. The evening was spent explaining to the students the scope of the project, and how, if the assignment had been a real one, an OPORDER would have been issued detailing the assignment.

There was an interesting reaction from the students when the idea of just a camping trip was removed from their minds and a seriousness developed as to just why they were there and what they must learn.

The students asked questions, set their security watches, and retired for the evening. The next morning after a breakfast of "C" rations and a shave from a canteen cup (new experience for the students), they were put to work on the project.

The first couple of hours were spent with the development of an execution plan and getting everything put into the proper perspective. Then the actual survey began. There was some hesitation and vacillation on the part of the students, but as the day wore on, this decreased and the development of some level of self-confidence began to show.

After supper that first evening, there were numerous questions asked and answered as the students and instructors sat around the camp fire discussing the day's work and planning the next day's events. The morning of Oct. 5 saw more initiative taken by the students as the level of self-confidence grew.

That afternoon the actual plotting of the map was begun on a plane table used as a plotting board. The plotting continued after the evening meal under the light of a lantern. The dedication to completing the job became evident the next morning as the students were in the supply truck attempting to figure out if they had enough rations to stay an extra day. They were becoming totally wrapped up in the project.

The work that day consisted mainly of filling in the blank areas showing up

Two students plot topographic information onto a contour map.

An appreciation of field conditions was experienced by the class as they enjoy having lunch of "C" rations.

on the plotting table. Late in the afternoon the camp and equipment were loaded on the trucks for the return to Gulfport. Once back in the classroom the students worked from their field notes, and each member of the class drew a map of the area to complete the project.

This emphasized to the students the need for good field notes because there was no running back to the field for the extra area that was forgotten. The students were asked to comment on their trip in their critiques of the course, and one of the typical comments was, "I've used every skill taught to me during the previous three weeks of survey class." The project proved to be an excellent final exam for the students.

During the conception phases of this method of training, many comments were solicited from other senior EAs in the Gulfport area. The general consensus was concern for an overall need to improve surveying capabilities in the Naval Construction Force.

Challenging field training is needed to reinforce the classroom time, enabling the student to retain more information as he enters his assignment within the Naval Construction Force. This idea is not new. The EA "A" School, with its longer duration in the past, had several weeks devoted to this type of field training at either Rose Valley or Camarillo Park in California.

In order to correct the deficiencies on the surveying abilities of the EA, the need for continuing to apply actual field conditions to the training is essential.

During the next five years, the experienced surveyors trained in the pre-Vietnam conflict era will become eligible for transfer to the Fleet Reserve and this experience gap must be filled.

Recent trips to Honduras and other world trouble spots have reinforced the need for these skills to be highly maintained within the Naval Construction Force. □

advice of counsel

departments

By ANATOLIJ KUSHNIR
NAVFAC HQ

The Federal Government is the largest single owner of real property in the United States. Its total holdings exceed the combined areas of the six New England States plus two states the size of Texas.

The Department of the Navy as an agency of the Federal Government administers a good portion of these lands. Consider an issue basic to the Navy's ability to hold and administer its lands and facilities legislative jurisdiction. The term means in the context of land holding and management, the power and authority of the Federal Government to enact, administer and enforce general laws for that area.

Before discussing the scope and character of legislative jurisdiction it should be first noted that the Federal Government possesses a "sovereign jurisdiction" over its land and other property which is and must be, independent of any and all state authority. This sovereignty springs from the fact that the central "Federal" government must, of necessity, be permitted to employ all means necessary to protect its own property and to accomplish the powers delegated to it by the Constitution. Such power and authority exists irrespective of the jurisdictional status involved:

There are basically four varieties of legislative jurisdiction:

- Exclusive legislative jurisdiction
- Partial legislative jurisdiction
- Concurrent legislative jurisdiction
- Proprietorial interest — no federal legislative jurisdiction

Mere purchase, without more, by the Federal Government of property within the states does not transfer legislative jurisdiction to the United States. Likewise, jurisdiction offered by states cannot be foisted upon the United States without its acceptance.

Prior to 1941, the Federal Government was presumed to have accepted the jurisdiction offered. However, in 1941 Congress specifically provided (by statute 40 U.S.C. §255) that express consent is now required of the United States prior to the acceptance of exclusive, concurrent, or partial legislative jurisdiction.

Examine briefly these jurisdictional categories as each one has a direct impact upon the manner in which the Navy can administer and manage its property.

Jurisdiction determines applicable laws. First, in an area of **Exclusive Legislative Jurisdiction,** a state grants to the federal government all of its authority to enact and enforce general laws and regulations with the sole reservation by the state to serve civil and criminal process for activities occurring off the federal area.

While this jurisdictional status does have its advantages, in that the federal activity has total control over the area involved, certain practical difficulties do exist. Naturally, the biggest problems arise when a serious crime is committed close to an area of exclusive jurisdiction. Who is to investigate the crime?

In exclusive legislative jurisdiction areas only Federal Government personnel have the authority to conduct criminal investigations and make arrests. State and local police have no authority to enter these areas and make arrests or conduct investigations for crimes committed in such areas.

The policing of federal exclusive jurisdiction areas must be accomplished by federal personnel, and an offer of municipality to police a portion of such an area cannot be accepted as police protection by municipality would be

(continued on page 10)

Advice of counsel (continued from page 9)

inconsistent with federal exclusive jurisdiction.

In order to provide a system of criminal laws for the ceded areas under its legislative jurisdiction and to address these types of problems, the Congress has passed the so-called *Assimilative Crimes Act* (18 U.S.C.§13). This statute applies to lands under exclusive and concurrent jurisdictions and adopts state law as federal law. Thus, violations of state law can be prosecuted in the federal court system.

Certain other problems exist. Not only will the state's criminal justice system not being available to enforce local laws and regulations, but the state civil courts will not be available as well. Thus, Navy family housing residents who reside in an area of exclusive federal jurisdiction, will not have access to the state's civil courts.

Though state laws on civil matters such as probate, divorce, consumer protection would be applicable, the residents would be required to use the federal judicial system.

The federal court involved, however, may be physically located on the other side of the state. Thus while the federal judicial system may be available, it may be as convenient as the state judicial system or as accessible.

Concurrent Legislative Jurisdiction. This term is applied in those instances where, in granting the United States authority which would otherwise amount to an exclusive grant of legislative jurisdiction, the state reserves to itself the right to exercise, concurrently with the United States all of the same authority.

It must be remembered under this jurisdictional status as under all others, the federal government has the superior right under the supremacy clause of the Constitution to carry out federal functions unimpeded by state interference.

In this category, federal law pertaining generally to the area is applicable. State laws are applicable as well and can be enforced by the state in its own court system.

The same state laws can be enforced by the Federal Government in the federal courts under the Assimilative Crimes Act, which by its terms is applicable to areas under the *concurrent* as well as the *exclusive* legislative jurisdiction. Most crimes fall under both federal and state sanction, and either the federal or state government, *or both*, may take jurisdiction over a given offense.

Partial Legislative Jurisdiction. This jurisdictional status occurs where the state grants to the Federal Government the authority to exercise certain state powers within an area but reserves for exercise only by itself, or by itself as well as the Federal Government, other powers constituting more than merely the right to serve civil or criminal process.

As to those state powers granted by the state to the Federal Government without reservation, administration of the federal area is the same as if it were under exclusive federal jurisdiction. As to powers reserved by the state for exercise only by itself, administration of the area is the same as though the United States had no jurisdiction whatsoever.

Proprietorial Interest Only. This term applies to those instances where the Federal Government has acquired some right or title to land in a state but has not obtained any measure of the state's authority over the area. In applying this definition, recognition should be given to the fact that the United States, by virtue of its functions and powers under various provisions of the Constitution, has certain powers and immunities with respect to administration of property it acquires which are not possessed by ordinary land owners.

Under this jurisdictional status, the authority and laws of the United States apply and the United States can, of course, utilize the federal court system to enforce these federal laws either by criminal or civil action. However, as the Assimilative Crimes Act does not apply in areas of proprietorial interest, only state courts are available to enforce state and local laws and regulations.

Thus, there may be some loss of control in the enforcement of local laws as the Federal Government must rely on local authorities and courts entirely to enforce local and state laws.

Until recently, it took an Act of Congress to retrocede jurisdiction; today we have a federal statute (10 U.S.C. §2683) which authorizes each military service secretary to relinquish legislative jurisdiction. Not many states, however, have passed complementary general statutes for accepting such retrocession. As such, in order to effectuate a retrocession of jurisdiction, specific state legislative action is required.

Though there are basically four varieties of jurisdiction, there is almost an infinite number of jurisdictional situations. Inasmuch as the various states have varied the type of jurisdiction offered to the Federal Government over the last 200 years, many Navy installations, particularly the older ones and those acquired in increments are complete hodge-podge of jurisdictions.

They contain some areas of exclusive, concurrent, partial and no jurisdiction at all. Over the years, as these installations have been developed and redeveloped, the lines between different areas of jurisdiction have become blurred. This hodge-podge creates difficult problems in administering federal installations.

Today, it is Navy's policy of obtaining and maintaining the least jurisdiction possible consistent with the operational requirements of the military activity concerned.

NAVFAC has in the past and is continuing to review its policies and practices in regard to acquisition and retention of legislative jurisdiction. It works in close cooperation with the naval activity concerned to identify and successfully resolve these problems. □

CONTAMINATION

How the Navy cleaned up toxic site

By JOSEPH KAMINSKI
P.E., Calif.
WestDiv, NAVFAC
AND
LT GARY MINCK, CEC, USN
P.E., Wis.
Public Works Department,
Long Beach Naval Shipyard

"The black, oily area is where we stored the drums. Buyers would dump them out before they hauled the drums off. Sometimes they'd be half full or more." This was disclosed at the Defense Property Disposal Office (DPDO) Scrapyard on Terminal Island in the Los Angeles Harbor. The seven-acre scrapyard had existed under DPDO for the last ten years and before that under the Navy. In 15 days the site was to be vacated and turned over to the Port of Los Angeles as a part of a previously negotiated real estate exchange.

One year, 600 laboratory analyses, $200,000 and 2200 cubic yards of contaminated soil later, we took the Navy lock off the gate and the City of Los Angeles took custody of useable real estate.

A bias toward action, quick commitment of funds, and both in-house and contracted effort combined to achieve the clean-up project.

INITIAL INVESTIGATION AND TESTING

Long Beach Naval Shipyard, area Public Works Lead Activity (PWLA) and Western Division NAVFACENGCOM began investigation by excavating four test trenches, which revealed a seam of oil-soaked soil sometimes extending to a depth of two feet. Samples were taken at six-inch levels and the shipyard laboratory, the first of six involved, provided enough information to confirm a problem. Lead was present in excess of 1000 mg/kg (thought to be from battery acid), a lot of oil (6% to 7% in some samples), and possibly some PCB.

Utilizing the nearby NEESA lab in Port Hueneme, it was determined that only a trace of PCB was present (maximum indicated was less than 0.5 microgram per kilogram), far below regulatory hazardous waste standards.

Concurrently, a commercial lab performed more comprehensive testing showing that the oil was straight chain non-halogenated, with no pesticides and confirming the near absence of PCB. Use of several different laboratories was not so much by design as it was a matter of location, funds available, and response time, but the relative agreement of these independent sources contributed validity.

Along with sampling and analysis, the process of seeking funds for cleanup was begun. A preliminary cost estimate of

An initial sampling is taken at an area of suspected contamination by two naval personnel.

Toxic waste site

Continued from page 11

$200,000 turned out to be very close to what was ultimately required, although the final scope was somewhat different. Concurrent with these events, NAVFAC was readdressing a CNO determination on responsibilities and fund sources for cleanup of hazardous waste. After determining that the "land owner" was actually the Naval Supply Center, San Diego, the site qualified for NAVFAC funding which was then quickly committed.

STATE AND CITY INVOLVEMENT

Armed with a reasonable hypothesis and promise of funds, we attempted to determine what, if any, involvement the State of California might have. What we found was a new and still little understood State version of the federal hazardous waste dump site law (CERCLA-PL96-510). It was full of probable cause, reason to believe, submittal of forms with data "dating back to inequity," public hearings, "hazardous waste easements," deed record filing with the County Clerk, perpetual State approvals, and severabilities that opened up multiple jurisdictions. We resigned not to go beyond the reasonable cause part.

This meant remove anything that might give the impression of reasonable or even unreasonable cause. Our best standard of "reasonable" was a draft California regulation. Surprisingly, in this era of vague "toxicity" criteria, it actually gave numerical standards for total and leachable contaminants in soil.

Fortunately, the Port of Los Angeles had no immediate plans for the property. We advised them of the nature of the problem and that we were studying it in more depth. This included another series of samples and visual observations including digging a 600-foot trench down the middle of the site.

We also continued discussion with DPDO personnel and talked with chemists at the Supply Center's petroleum laboratory. Information from their sources caused us to change hypothesis.

We concluded that we had a layer of oil-soaked compacted sand up to 18 inches thick that had been purposefully placed as a dust control/soil stability measure.

The hazardous waste site after clean-up and restoration.

This could have occurred forty years ago when the site had been a fuel farm. The lead encountered was not from batteries, but appeared to be the inorganic decay products of leaded petroleum. Differential settling over the years had led to the oil layer being partially covered with a dirt and gravel (D&G) mixture and some thin asphalt.

It was concluded that we had to statistically prove that the extent of contamination was generally confined to the oil layer and then dig it out. Fifteen grids and a series of grab samples were set up to blanket the entire seven acres, computer generated sequences of random numbers were obtained, and corresponding grid points were layed out at the site.

Our plan was to sample at the surface, at about 18 inches or the visually obvious oil layer and 36 inches, or below the layer. A separate analysis was performed for each level at 75 point on seven grids in areas most likely contaminated and to analyze a composite of samples taken at each level over the remaining grided areas.

This procedure was based on guidance in EPA's just published "Test Methods for Evaluating Solid Waste." Since inorganic lead and copper were the major problem or at least adequate indicators of other contaminants, we could afford the statistically needed large number of samples since we would call for only two relatively inexpensive analyses. Results were expected to show that we could remove and save several hundred yards of uncontaminated overburden, excavate the oil-soaked sand out and backfill on about one-fourth of the site, with nothing required on the other three-fourths.

It was this proposal we made to the Port of Los Angeles, whose staff was as anxious to solve the problem as we were and their cooperation was a key factor in the achievement of our objective. Our proposal was accepted with the caveat that if sampling showed otherwise, modification would be made. We were also asked to obtain three ground-water samples and were required to obtain a Port of Los Angeles construction permit.

The Port's most important contribution was allowing us to obtain backfill from an adjacent vacant Port-owned property that had been built up well above grade. On an industrial island in the Los Angeles Harbor, normally there is either no place to put excavated soil or no place to get backfill. That we needed only to go across the street for the then estimated 1,500 cubic yards was a significant savings.

IN-HOUSE EFFORT

The Shipyard Public Works Department had enough earth-moving equipment for the initial sampling effort. Invaluable, however, was project support by the Public Works Transportation Division, especially the work and operational advice of one employee — a retired Seabee battalion operations chief. This initial support led us to do all but the final disposal ourselves. With Shipyard Public Works equipment and operators, supplemented with rented excavating equipment, we made the commitment and began the actual clean-up.

In less than three days, 480 samples were taken from 160 separate backhoe dug holes. Three 15-foot-deep excavations were dug to reach and sample the groundwater. It had no contamination at all, even though it was fresh water that per-

colated through the sandy soil from recent heavy rains. Surface samples, however, showed that there was excessive copper virtually everywhere. The regulation we followed did not list metallic copper as a hazardous waste except in a "friable or finely divided state." We believed we were picking up small pieces of copper scrap, but with time running out, a delay to resolve the subjectivity of "friable and finely divided" was deemed a more costly approach than to scrape the top two to three inches of soil and dispose of it as hazardous. This became the first step in actual excavation.

CONTRACTED REMOVAL

A tracked, bladed crawler and a grader were used to strip the top two to three inches off the entire site. This metal contaminated soil was stockpiled to be hauled away as a hazardous waste. Once the top layer was removed, the rented 15-cubic yard, self-powered elevating scraper was brought on site.

The next operation was to remove approximately 6-15 inches of clean overburden (largely the dirt and gravel mixture) and stockpile it for later use as clean backfill. The scraper, grader, and crawler were used for this with the scraper doing most of the work because it was self loading and able to finely control the depth of cut.

Sample results from the test pits were used to determine the depth of scraper cut for each section. Excavation continued until areas of known contamination were reached. Removal of the contaminated layer was then begun using the scraper with repeated pass, shallow depth of cut technique. This minimized the amount of clean soil entrained in the contaminated load. Excavation and stockpiling continued until the area of no contamination was reached.

After stockpiling the contaminated soil, the next step was to excavate and haul the clean backfill from the City's designated borrow area. This site was only 200 yards from the scrapyard, but it crossed a secondary road which was a heavily used truck route to the nearby Port of Los Angeles. The work permit negotiated with the City allowed the scraper to traverse the road and be used for this borrow and backfill operation.

The backfill was boulder-laden but otherwise suitable for compaction. The scraper cut, hauled, deposited and rough-leveled the fill with the grader following to rough grade and windrow the stones for later pickup.A pneumatic roller followed, compacting the fill. Each operation was done in a series of "lifts" until the backfill was brought up to the surrounding grade.

EXCAVATION

Two stockpiles of soil remained as the backfill operation was completed. The smaller, clean pile from the overburden removal was to be used in final leveling and grading. The larger stockpile was contaminated soil to be hauled away by contract to an authorized hazardous waste disposal site.

Initial contract preparation had begun many months earlier. Authority for both competitive negotiation under Title 10 USC and waiving small business set aside was requested and obtained because the quick hazardous waste cleanup was a matter of public exigency. The authorizations allowed us to retain firms experienced in recent hazardous waste cleanup in this area.

Hazardous waste burial at an authorized landfill. The dark area in the center is contaminated soil.

The contract itself was an indefinite quantity maintenance construction type which required performance bonds from the contractor. The contract called for payment per cubic yard of loaded, transported, and properly disposed of hazardous waste from the contaminated stockpile. The lowest proposal was $72.40 per cubic yard.

The contractor used 30-yard lined and covered-end dumps for transport to the disposal site 200 miles away in Kettleman Hills, California. California's six-part manifests were prepared and signed by the on-site Government representative and issued for each load hauled. A visit to the disposal site was also made to verify and document disposal operations for, as pointed out by the EPA, ". . . notwithstanding the fact that the generator has complied with the requirements in 40 CFR 262, The Agency may still take legal action . . (against the generator) if deemed necessary . . . ."

This underscores the generator's ultimate responsibility for "cradle to grave" management of its hazardous waste even though the generator has "in good faith followed all the generator requirements in the regulations implementing the Resource Conservation and Recovery Act of 1976 (RCRA) . . ., through and including receipt of a signed copy of his manifest from the designated facility . . . ." This kind of legal opinion from the regulators convinced us as a generator to assure that final disposition was without question.

CONCLUSION

It is important to remember that the scrapyard site was City of Los Angeles property when the contamination was discovered. The Navy already occupied previous city land that had been exchanged on an equal basis. Contamination made that equality questionable, which could have led to significant real estate problems, and raised the aura of DoD impropriety in excessing property contaminated with toxic materials. A quiet and complete resolution was possible only through immediate action, close interagency cooperation, internal Navy support at all levels, and the open sharing of mutually useful information. According to the House Subcommittee, Congressional investigation into handling of DoD toxic waste disposal sites has just begun. Other "scrapyards" may well exist. □

Navy Civil Engineer

SURVEY RESULTS

I AM
36 USN 26 USNR 8 USNR (Inactive)
37 Civilian Employee
0 Paid Subscriber 4 Other _____

MY GRADE IS GS-12 (Average) LCDR and E-7 (Rank, Rate, GS-)

I AM ASSIGNED TO
10 NAVFAC 6 ROICC
9 EFD 4 STAFF
4 PWC 7 RESERVE
22 SEABEE 3 CBC
36 OTHER (Specify _____)

I have 17 years of accredited education (elementary, high school, college).
I hold a BS degree in **Civil Engineering (34 hold Masters and Doctorate degrees in C.I. and others.)**
I have 16 years of government service (civilian and armed forces combined).
I have/have not contributed articles or material to The Navy Civil Engineer. **44 have; 64 have not contributed.**
I have been a reader of The Navy Civil Engineer for 11 years.
I usually read: **39** all; **64** more than half; **8** less than half; **0** hardly any of the contents of The Navy Civil Engineer.

My Rating Of The Magazine

	Excellent	Good	Fair	Poor
My *overall* opinion	50	42	2	1
Editorial content	49	49	7	0
Format	64	41	2	1
Page design	58	44	5	1
Photographs	63	34	9	0
Printing and paper stock	76	25	7	0
Mailing and distribution	41	29	14	20

Delivery and Availability

97 I receive my copy through the mail.
90 It arrives in good condition.
1 It does not arrive in good condition.
12 I receive my copy through Navy distribution channels.
17 Copies are easily and readily received.
6 Copies are not easily obtained.
I read my copy in a library or other central source.
The copy I read is shared with 4 others.

Frequency

I prefer to receive the magazine
33 Monthly
22 Bi-monthly
50 Quarterly

Of The Standing Departments

	I READ	DON'T READ
Speaking from Topside	97	6
Advice of Counsel	89	9
NAVFAC SitRep	92	8
PW Tek Notes	78	18
Readers' Comments/ Questions	95	7
News Worth Reviewing	104	1

Article Preferences

	I LIKE	DON'T LIKE
Research and Development	83	9
Management	80	13
Education and Professional Development	71	8
Engineering and Construction	97	0
Technical Articles	75	7
Seabee Operations	84	5
Reserves	58	22
Environmental Subjects	65	16
Energy Management	68	15
Housing	44	28
Historical Features	95	7

Thank you for responding to our readership survey. A total of 110 readers answered the questions and many responded with added comments which were very much appreciated. Knowing your desires will make it easier for us, the staff, to give you what you want in your magazine. After all, you're the boss and what you care about is very important to us.

A tally of the number of answers received for each question is published in its respective position above. Most of you did not answer every question; consequently, the numbers do not always total 110.

Many complained about receiving the Fall 1983 issue late, and about not being able to return the questionnaire by January 17. We apologize for being late, but extenuating circumstances beyond our control made it impossible to change the due date or to get the issue in the mail any sooner. The problem has been corrected and will not occur again.

Many would like to see more articles about PWC activities, environmental topics, travel articles and deployments, energy, Navy and Seabee history, computer technology, Seabee community projects, R & D on construction materials, interfacing between civilians and the military, and the Antarctic and Arctic regions. Articles on many of these subjects are planned for near future issues and a few are in this issue.

Our thanks to the many readers who responded with a promise to write and submit articles in the near future. We've marked our calendars and are keeping our tabs on you. We know who you are. Thank you!

A few comments: For the reader who doesn't like the labels covering up the articles. We think we have whipped the problem of placing the address labels over titles, photos and copy. That shouldn't happen any more. One reader suggested that if the author's position were published, it would be easier to understand the author's point of view. We are working on a solution.

There were many, many complimentary comments received for which we are eternally grateful and too modest to mention. Three readers criticized the staff for such things as allowing an incorrect usage of the word "comprising" to slip through; for "sloppy editing of the 'dredging' article;" and for using " . . . some odd colors and tacky, poorly-done cartoons . . ."

In defense of our two-man staff, or perhaps I should say our two-person staff, that we are going to try harder to correct these "deficiencies" and continue to improve the quality of the *Navy Civil Engineer*. We thank you for your criticisms as well as the compliments. Both kinds of comments get the same reaction from us — the staff. We will try harder to give you, the readers, what you want. Please write anytime and let us know of your desires. You don't have to wait for a published survey.

Thank You, the Editor

Write?

The magazine is as good as the material on its pages, and it depends entirely upon contributions — YOUR contributions. The more contributions received, the better the quality of the magazine's content. If you are a member of the Civil Engineer Corps, the Seabees, or an employee of NAVFAC, and you have some information that you want to share with other readers, by all means send it in.

Your subject matter should be of general interest to the readership. It should tell them of problems and pitfalls they might avoid; tell of new programs and future plans that have a significant effect upon the readers; should be significant technical developments or break-throughs; changes in procedures, systems, or methods; new management concepts; and occasionally, we like a feature of a historical nature or a personal experience, but it must be unusual and interesting.

Worried about your ability to write articles? Afraid you will look like an amateur? Don't be! Follow these simple directions and leave the rest to our editorial staff.

Some tips: don't try to cover the entire war in one article; write about one of the battles or skirmishes instead. In other words, limit your article to cover your subject efficiently in from six to 12 pages.

Your article must be exclusive to the magazine. Don't send it to other publishers concurrently. If both publishers publish your article, neither of them will appreciate seeing the article in what may be a competitive publication. Don't send copyrighted material. Material published in the Navy Civil Engineer Magazine is not and cannot be copyrighted.

How to prepare

Please type and double space all text. Not all capital letters, please! Include a title. It may be changed later; at least it gives us an idea of what the article is all about. Define terms that are unusual. Your dates should be civilian style — not military. May 4, 1984 — not 4 May 1984. Times should not be military: 7:38 p.m. — not 1938.

Include your name, rank, and position, and if you are a registered engineer or architect, please indicate which state. For example — P.E., Calif. & Pa. Keep your sentences short. Don't use a big word when a smaller one will do the job. Generally, try to write the way you talk.

Artwork/photos needed

Try to illustrate your material with effective graphics — good, clear photos or line drawings. Cartoon art is acceptable, too! Your photos should be black and white glossies, preferably 5 × 7″ or 8 × 10″. Smaller photos are all right, however, if that's all you have. Color prints are not acceptable and cannot be used. And don't send negatives or slides.

Your photos should show action or something pertinent. Please don't send the hackneyed grip 'n' grinners (handshakes), group shots, poses behind the important desk and nameplate, or other obvious poses. Action is attractive to the readers! Be sure to write a caption for each photo. Don't worry about the form — just identify people in the photos and what they are doing. By the way, if your photos are really unusual, they may be used on the cover!

Don't forget a release

Your material must be accompanied by a proper release. The release should be signed by someone in authority and should verify that the information is correct and that it is NOT classified material. Request release form "Publication Security Review and Clearance" form NAVFAC 5720/6 from your local representative of the Regional Correspondence System or Public Affairs Officer, and include it with your article.

Deadlines

Currently, the magazine is published four times per year: Spring, Summer, Fall and Winter. Pick an issue you'd like to be published in (although we can't promise it) and we'll try to get you in that issue if it's important to you.

Sometimes, there are variables that dictate when and what we can print, however. For example, identical subject matter — three articles on computer systems would have to be spread out over several issues. A five-page article cannot fit into a three-page space, so it would be postponed until the next issue and then given priority space.

DEADLINES
Fall — July 15
Winter — October 15
Spring — January 15
Summer — April 15

We'll look forward to receiving your article in the magazine's editorial office. If you would like to have an author's guide to explain things in greater detail, please write or telephone our office and a guide will be sent to you. If you have questions, please call Autovon 360-3104, FTS 799-3104, or Commercial (805) 982-3104 and let's talk about your article plans.

The Editor

CHICKEN to combat

By ENS STEPHEN F. TYAHLA
E.I.T., Pa.
Environmental Protection Officer
NAVFACENGCOM Jacksonville, Fla.

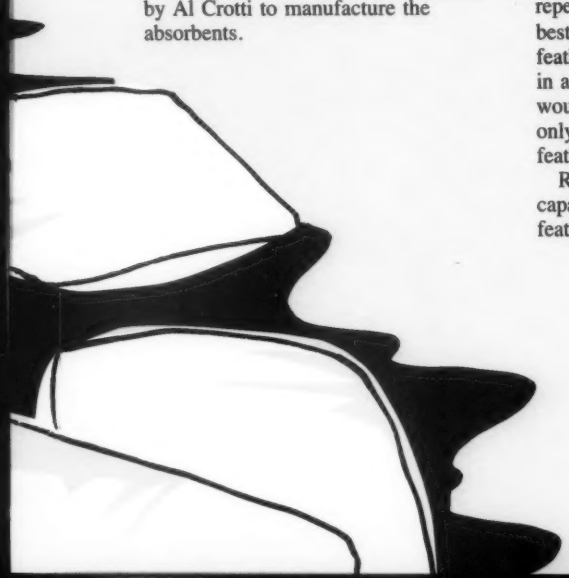
FEATHERS

oil spills ?

Water pollution, in the form of oil spills, is a problem with which all naval facilities must contend. Conventional methods to combat oil spills including artificial sorbents and mechanical oil skimmers can be both expensive and difficult to use. However, the insight of Al Crotti, an American international lawyer, has led to the development of a product which is apparently a solution to the oil spill clean up problem. The product? Chicken feather pillows.

Much attention is being paid to Mr. Crotti's feathers. Time magazine has written about them in their issue of September 6, 1982, and in February of 1983, an article was printed in the Petroleum Review.

Prince Philip, as Chairman of the World Wildlife Federation, lauds Mr. Crotti's invention. Large exposure was given to the bags when the television program "That's Incredible" aired a story recently which was filmed at the Miami, Florida, manufacturing plant of Seaclean, Inc., the company formed by Al Crotti to manufacture the absorbents.



It was the television program that introduced the Naval Air Station, Jacksonville, Florida, to the absorbing chicken feathers. A sample order was made soon afterwards for 500 bags. These were to be put on trial at a pollution abatement project site on the station where mechanical oil skimmers had repeatedly encountered trouble caused by floating debris.

Mr. Crotti and other representatives of Seaclean, Inc., flew up from Miami on December 13 to observe our trial and offer advice. The trial was very successful and we plan to continue the use of the chicken feather absorbents.

Mr. Crotti's idea originated while he was viewing photographs of the aftermath of the "Torrey Canyon" disaster in 1967. Seeing how so many unfortunate birds had absorbed oil and died made him think — would it be possible to use feathers to pick up spilled oil?

At first, Mr. Crotti thought that seabird feathers, with their water repelling preening oil, would work best, but it was learned that chicken feathers, which were washed and dried in a certain way, were superior and would actually absorb oil rather than only having the oil adhere to the feather.

Research has been done on the capabilities of Mr. Crotti's chicken feathers, which come in the form of oil absorbing bags and booms. First of all, basic research was performed by the Faculty of Engineering at the Queen Mary College in London in 1979.

The feathers could absorb over 17 times their weight of oil and would float in seawater even when saturated. It was also found that the feathers absorb lower viscosity oils more readily than they do thicker oils, but in all cases, agitation enhances oil pick up.

To contain the feathers, Mr. Crotti designed a bag of open mesh which he called a "teabag" after the household item that gave him the idea.

Success with the bagged feathers at sea trials was supported by tests conducted by the Swedish Water and Air Pollution Research Institute in 1980. The Institute tested the absorption capacity of the feathers with oils ranging from light crude oil to heavy, weathered crude oil. They found that virtually all of the oil was absorbed with no bleeding.

Tests recently performed by Seaclean showed that the bags and booms will effectively absorb oil in water as cold as 38°F.

The latest research, performed by the Canadian Environmental Protection Service, shows that the bags and booms also absorb the phenolic compounds, cyclohexane and toluene.

In 1982, Mr. Crotti formed the

Continued on next page

company called Seaclean, Inc., to manufacture chicken feather bags and booms for commercial use. The only current production plant is in Miami, Florida, but Mr. Crotti says that future plans include opening plants in Europe, the West Coast and somewhere in the mid-west of the United States.

Current production capabilities at the Miami plant allow 4,000 pillows to be made in a day, however, production could easily be doubled with the addition of only two personnel.

Each pillow consists of a half pound of chicken feathers encased by an 18-inch by 18-inch knitted nylon sack and each one costs $3.

Boom is made in 30-foot lengths and may be coupled together or custom made to produce the desired length. Each foot of the absorbing boom is equivalent to one bag and priced accordingly at $3 per foot of boom.

The light weight and high compressibility of the bags and booms make them very easy to use, transport and store while their large absorptive capacity make them amazingly effective.

For more information regarding Seaclean's products, contact Seaclean, Inc., Suite 555, 7000 S.W. 62 Avenue, Miami, Florida 33142, phone (305) 661-1024. □

Applying a direct application of the absorbents is effective for hard-to-reach locations.

A dam of pillows is used to absorb solvents from a pollutant clean-up project.

Water is draining from an oil-soaked pillow that has turned as dark as the shadows behind it.

technical notes

Grapple Tongs: like an 8-ft. Arm

The new Grapple Tongs enable one man to stand *outside* a manhole or catch basin, insert the jaws end of the Grapple Tongs down into the manhole, and safely remove unwanted material such as cans, rocks, plastic, and other debris.

Since there is no need for the operator to enter the manhole or catch basin, the safety advantages are magnified. Over eight feet long, the easy-to-use Grapple Tongs are built entirely of steel . . . with only four moving parts. The new Grapple Tongs satisfy a definite need in the sewer business — it is like giving a man an eight-foot arm. It gets solid material out of a manhole without having the man crawl down into it.

For additional information, contact The Navy Civil Engineer, Code C20M, Naval School, Civil Engineer Corps Officers, Port Hueneme, CA 93043, Tel: Autovon 360-3104; FTS 799-3104; Comm (805) 982-3104.

Foreign Negotiations
require tact, diplomacy, know-how

By CDR KENNETH W. MEEKS, CEC, USN
P. E., La. and Va.
NAVFAC HQ

Host Nation Support (HNS) has existed in the Republic of Korea (ROK) for many years, primarily as a result of agreements established between the different United States (US) service branches and their respective ROK counterparts. The Combined Defense Improvements Projects (CDIP) program, recently developed in Korea, began as a result of discussions at the Security Consultative Meeting between the US and ROK Governments in 1979. The CDIP program is now the primary HNS mechanism.

DEVELOPMENT OF CDIP

The program is guided on the US side by a General Officer Steering Committee which is responsible for the overall guidance of the program and the assignment of relative priorities to individual projects. The program is administered on the ROK side by the Ministry of National Defense.

The CDIP program is now fully institutionalized and functioning well. Procedures have been established covering the submittal, review, and coordination of initiatives before they are transmitted to the ROK.

Also, the ongoing interfaces between the two governments required for program monitoring and execution have been developed and shown to be effective.

The CDIP program requires extensive negotiations with the host nation, particularly on those projects which involve the construction of new facilities. These types of projects are those which the ROK government is willing to fund and support to enhance defense of the Korean peninsula.

These projects can range from the construction of an entire new US air force base to support the deployment of an A-10 Squadron to Korea, to the providing of new facilities in the U.S. Army 2nd Infantry Division (2ID) in support of the deployment of new weapons systems into Korea.

The ROK Government is presently committed to a number of these facilities-type projects which represent a sizable investment by the ROK in support of the combined defense.

CDIP negotiations are an integral part of the program. A formal agreement must be successfully negotiated which spells out the details of the type of support which the ROK will provide and also the responsibilities of the US side.

A typical agreement will address such things as the scope of the project, the facilities involved, construction and engineering standards, project design and review, field surveillance, and legal claims that may arise.

CDIP negotiations are probably the most difficult type of negotiations that one will ever encounter. Highlighted here are some of the most difficult aspects of these complex negotiations with a host nation whose culture, lifestyle, and ways of doing business are so different from our own.

It is often necessary to spend quite a bit of time just getting to know each other

The American negotiator, in a short period of time, must learn to work in an arena with a totally different frame of reference from his own.

Also discussed are the important role of the Joint Working Group (JWG) chairman, the nature and types of negotiations involved, the keys to being successful in the negotiations, and the rewards to be reaped from a successful negotiating experience.

ROLE OF THE JWG CHAIRMAN

When negotiations are ready to begin on a CDIP action, each government will appoint a respective Joint Working Group chairman. The JWG chairman is the key person in the successful conclusion of an agreement. The formal agreements which are negotiated by the two JWG Chairmen are called Memorandums of Agreement (MOAs).

In general, the JWG chairman should be the individual on the staff, either military or civilian, who knows the most about the proposed action. It is common practice to appoint JWG chairmen who are roughly equal in grade or rank.

The JWG chairman will be the single point of contact for the US side throughout the negotiations and is the key figure in the success or failure of any CDIP negotiation.

The MOA, which is the end result of the negotiations between the two JWG chairmen, will be signed by each chairman and becomes a binding country-to-country agreement. The entire MOA is published in the official minutes of the Facilities and Areas Subcommittee of the Status of Forces Agreement (SOFA).

This serves to institutionalize the agreement into a legally binding document for both governments. During the

negotiations, and as the signer of the MOA, the JWG chairman is an official representative of the government.

In the negotiation phase of a CDIP project, most of the time the details are hammered out in small group meetings conducted by the JWG chairmen. As the negotiations begin to reach a climax, these working level meetings can occur as often as several times a week. Normally, the site for these meetings will alternate between the two JWG chairmen.

Sometimes these sessions can be quite long and involved with two hours being about the average length. It is during these very important meetings that the JWG chairman will be fully challenged as a professional representative of the U.S. Government. He is charged with negotiating a fair and equitable agreement while representing his government to the best of his abilities.

TYPES OF NEGOTIATIONS

The types of CDIP program actions that involve the most difficult negotiations are those involving facilities. The ROK Government has agreed in these types of projects to construct new facilities in support of the USFK for the improvement of the combined defense. The negotiations between the two JWG chairmen will result in a formal MOA being signed which will address all the details involved and the responsibilities of each government.

All the design and construction will be coordinated and managed by the ROK Army (ROKA). The facilities involve new firing positions, ammunition holding areas, several maintenance facilities, and helicopter parking pads. The ROKA agreed to construct the facilities to US standards.

The Department of Defense (DOD) Construction Agent in Korea, the U.S. Army Engineer District, Far East (FED), Corps of Engineers, will provide design review and construction surveillance for the US side. This project is a good example of the type of host nation cooperation by the ROK which will significantly enhance the war fighting posture.

The other type of HNS project involving facilities that normally requires extensive negotiations is the Quid Pro Quo (QPQ). Under the SOFA, facilities and areas may be returned to the ROK Government when a USFK facility need still exists if replacement facilities are provided by the ROK Government.

A Korean's self-esteem is a precious commodity

The replacement facilities are provided by the ROK Government at no cost to the US and are built to US standards. This type of action is known as a QPQ (like for like) agreement or project. A QPQ project also requires that a country-to-country agreement be negotiated in a similar manner to the CDIP projects.

The scope of this program is very much dependent on the interest of the ROK Government, i.e., how badly they want something we have, and the economic situation, i.e., the availability of funds for the replacement facilities.

MAJOR CONSIDERATIONS IN THE NEGOTIATING PROCESS

There is no more challenging assignment for a person serving in the ROK than to be assigned the responsibility to negotiate an MOA with an ROK counterpart. Anyone who has participated in construction-type negotiations with US contractors on such things as change orders knows that negotiating is an art that will fully tax one's abilities.

The inherent difficulties encountered in the US are greatly magnified when given the environment of negotiating in a country like Korea where the culture, language, behavior, heritage, characteristics of the people, and lifestyle are so unlike our own.

The successful negotiator must combine talents as a diplomat, engineer, and statesman with a large dose of patience and understanding of the Korean culture and tradition. Examine a few of the major things that must be considered and understood about the Korean people and their feelings during the negotiation stage of a project.

The most obvious difficulty in the negotiating process is the language barrier. The Korean language is one of the most difficult tongues in the world for a Westerner to even begin to grasp. It is often a major problem to an American's understanding of Koreans.

The Koreans consider their language to be their most distinctive trait. This language seems to be closer to Hungarian, Finnish, or Turkish than it is to other Oriental languages.

They also have their own efficient phonetic alphabet which dates back to the 15th century; however, they still make use of Chinese characters for some technical terms and proper names.

At best, the US service person stationed in Korea for a year or two can expect to be able to learn a few of the basic phrases used in everyday conversation. To go beyond that would require a concentrated period of language study that is not normally possible.

Every Korean whose education extends beyond primary school has studied English. By the time college is finished English has usually been studied for about ten years. Unfortunately, the Korean will probably not have an occasion to speak English very often. Quite a bit of English will be understood but not spoken sufficiently to carry on a very effective conversation. Using a little patience and flexibility, it is usually possible for a foreigner to communicate basic needs in the urban areas of the country.

Prior to the signing of the MOA after negotiations have been concluded, the agreement will also be officially translated into both languages. Each MOA should contain a paragraph that delineates which translation will govern in case of a dispute.

The language barrier can certainly cause CDIP negotiations to be more time consuming, frustrating, and difficult than they would otherwise be.

The type of construction standards to be used is always a matter which is subject to serious negotiation. This is often one of the most common areas in which there can be some serious disagreements. The US would like all the facilities to be designed and constructed to US standards.

The ROK resists this since the use of US standards, in lieu of ROK standards, will increase the cost by at least 30%. Frequently, it is necessary to reach some type of compromise position. It is always essential that the US life, safety and health criteria are satisfied.

Currently, an effort is underway to develop, in conjunction with the ROK Government, a set of joint construction standards that would govern all CDIP and other host nation projects. The ROK Government has indicated a willingness to participate fully in this effort.

Ongoing efforts are also underway by the FED to identify more Korean-made materials that will meet US criteria. Under current procurement conditions, it takes an average of five months to get US material.

These ongoing actions should help to make the CDIP negotiations in the sensitive area of construction standards easier to handle in the future. A set of jointly accepted engineering standards and criteria would be useful and should significantly expedite the negotiations for mutually agreeable MOAs.

The FED, as the DOD construction agent in the ROK, has the responsibility for design review and construction surveillance. The role of FED in the project must be addressed in the MOA. FED involvement as the US DOD construction agent is something that has sometimes been difficult for the ROK Government to understand and accept.

The ROK contractors are not yet as oriented toward strict quality control as is practiced in the US. There is really no organization in Korea that equates to the FED.

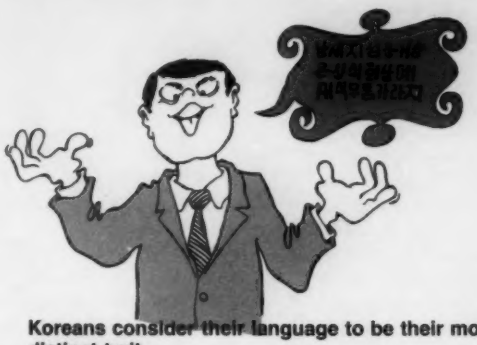
As the ROK Government becomes more familiar with the role of FED and the benefits that can result from their involvement, their role in the CDIP program will be more readily accepted.

A successful negotiator learns very quickly that there are some types of words and phrases that are offensive to the Korean people. These people are very proud and patriotic.

Their lifestyle is much more rigid and formal than that of a Westerner. It takes a while for them to warm up to you. It takes some time to develop a personal friendship and professional rapport with them. This is a part of the Korean tradition and behavior that comes from the Confucian ethic under which these people have lived for thousands of years.

They resent wording that tends to direct them to do things. They do not like for the US Government to attempt to impose its will upon them in any agreement. Wording that gives the appearance of the USFK reviewing and approving their efforts tends to cause problems in the negotiations of an MOA.

The word "submittal," for example, is offensive to most Korean negotiators. This connotes to them that we consider their work inferior, so we require that it be submitted to a review and approval by the US. Their national pride causes them to feel this way. No amount of discussion between the two JWG chairmen will be able to overcome these feelings.



Koreans consider their language to be their most distinct trait

They must be understood as being part of the way the Korean thinks and reacts.

The best way for the negotiator to deal successfully with these problems is to select other words that will not offend. In a recent MOA the word "submittal" was deleted. The revised wording simply stated that the design would be "delivered" to the FED for review and consultation.

With a little experience, some careful consideration to the phrasing and wording, and a basic knowledge of the Korean culture, the US negotiator can successfully handle these problems. Normally it is not so much what is being stated as how it is being stated. The negotiator's job then, when he recognizes this, is to learn to say the same thing using acceptable wording.

The US negotiator must gain some knowledge of how the Korean thinks and how the Korean philosophies and values are different from our own. This will foster a favorable negotiating atmosphere which encourages good rapport and communication.

A thorough understanding of the major difference in the Korean lifestyle and customs from those familiar to Americans will enable the US JWG chairman to be much more effective.

Many common Western ideas are completely foreign to the Korean mind. The idea of "letting the chips fall where they may," for example, would frequently not be acceptable. It may be advisable to avoid coming down hard on some issue, even though you may be speaking an absolute truth, when it will possibly damage a person's feeling of self esteem. Koreans are sensitive and a negotiator must never give any impression that he is "looking down" on them. One should never make a Korean the brunt of a joke or prank since this would be very embarrassing.

One of the things you learn very quickly during negotiations is that free and unrestrained decision making among Korean people is not as common as in the US. This has frustrated US negotiators for years. Although the ROK JWG chairman with whom you are negotiating will be representing his government, he may not have the same authority you do.

There are many levels of review and authority on the ROK side. Every decision made during a negotiation will need the approval of normally at least three levels of review. This is one of the reasons that these negotiations take so long.

It will usually take at least a year to negotiate a major CDIP agreement. On one recent negotiation, the US JWG chairman dealt with five different organizations within the

ROK Government before an agreement was finally concluded.

It is impossible to predict how long the negotiation process will take on a CDIP project. Since it normally takes a long time to conclude an agreement, a great deal of patience is necessary.

Korean people are not usually as time conscious as Americans. In Korea it is considered rude an poor manners to give the impression of being in a hurry. Most Americans live and work at a much faster pace than the Oriental. It is often necessary to spend quite a bit of time prior to the actual beginning of negotiations just getting to know each other.

A proper atmosphere should be attained before beginning any business negotiation. The normal procedure is to begin with a bit of small talk and then to gradually zero in on the main business at hand. The creation of good working relationships with Koreans requires a considerable amount of time.

Most military personnel in Korea for a two-year tour who deal with Korean counterparts frequently feel that they are much more effective in their second year. Much of the first year is spent in developing their relationships with Korean friends and associates.

Business ritual is part of the Korean culture. There can be a significant amount of pre-negotiation formality. During the 2ID Project negotiations, the US negotiating team was invited to visit their ROK counterparts on two separate occasions solely for the purpose of formally meeting and getting to know each other.

It was several weeks later before the ROK chairman was ready to begin the actual negotiations. The Koreans do not rush into things and usually will resist US attempts to expedite official actions, particularly anything like a complex CDIP negotiation. The US negotiator would do well to enter into any session with his ROK counterpart with a good grasp of what Rudyard Kipling so beautifully expressed many years ago:

Now it is not good for the Christian's health to hustle the Asian brown,
The the Christian riles, and the Asian smiles and he weareth the Christian down;
And the end of the fight is a tombstone white with the name of the late deceased,
And the epitaph drear: "A Fool lies here who tried to hustle the East."

Of course in any lengthy negotiation, continuity is on the side of the ROK. US representatives, both military and civilian, come and go every few years. Many times a CDIP negotiation will extend beyond the normal military tour of duty. This means that a new US JWG chairman must be appointed in the middle of the negotiation phase.

To expect the new US representative to the able to hold his own with a ROK representative who has been involved from

Korean people are not usually as time-conscious as Americans

the beginning is asking a lot. It is easy to see the difficulties this situation can cause. The new US negotiator is not only unfamiliar with the details involved in the negotiations but usually is also unfamiliar with the ROK culture and traditions.

The only way to minimize these difficulties is to get a thorough briefing on the status of the negotiation from his predecessor. It is also helpful for the outgoing US JWG chairman to arrange a special meeting for the purpose of formally introducing his replacement to the ROK JWG chairman. This will help to break the ice more quickly and easily for the new US representative.

If the new US JWG chairman can attend an actual negotiating meeting with his predecessor, this will also give him some valuable experience on how to conduct himself, the format for these meetings, and what he can expect.

It is only natural for a new representative to enter a situation such as this with some uneasiness and trepidation. Anything that the outgoing person can do to ease this burden is beneficial to the smooth continuation of a negotiation in progress.

The last thing that must be mentioned as an important consideration in any negotiation is the importance to the Korean people of face saving. It is part of the Korean culture to do anything to save face. In Korea a person probably values his self esteem more than any other individual trait.

The individual's face involves a number of psychological things, such as morale, feelings and opinions about him or herself, how he or she is perceived by others, prestige, and the attitude that he or she projects. These things are, of course, also important factors in how the Korean will act during a negotiation.

It is essential in your relationship with a Korean that you do not do any damage to the self image.

The US negotiator should attempt at every opportunity to enhance the self esteem of the Korean. Any damage to one's face will surely cause a breakdown of trust and probably the end of any effective negotiation.

Anything which a foreigner does, even unknowingly, which causes loss of face, will almost certainly damage the relationship with the Korean individual involved.

It is sometimes more important the way you do something than what you actually do. Koreans place a lot more emphasis on mood, attitude, and atmosphere than we do in the US.

One of the biggest errors that a US negotiator can make is failure to appreciate this important aspect of the Korean culture. The successful negotiator will always act in a manner to enhance the prestige of his Korean counterpart.

KEYS TO SUCCESS

A resourceful negotiator will quickly learn that there are several keys to concluding a CDIP MOA successfully. There is a need for a lot of patience, for a good working knowledge of ROK customs, for gaining the respect and confidence of the ROK JWG chairman, and for being consistently fair and reasonable. The Koreans consider impatience to be an undesirable trait.

In the business world, diplomacy, tact, and deliberation are the marks of a successful businessman. Negotiators will take the time to study each other's feelings and styles in hopes of getting a better feel for the attitude of the opponent. The successful US negotiator must remember the epitaph written by Kipling. Orientals live and work at a much more relaxed pace than most Americans.

The existence of Western ideas in Korea only dates from the time of the Korean War. The ancient customs and traditions are still strongly practiced in both social and business relationships, even though changes are occurring in many parts of Korea. The successful negotiator must be aware that most Koreans still adhere to their traditional values. Care must be taken to show proper respect for the feelings of the Korean counterpart.

Many Koreans have been around Americans long enough to have adopted their casual approach in relationship with others, but this attitude is still frowned upon by most. For example, to touch another person, such as a pat on the back, which is so common to a Westerner, is considered an affront, unless persons have been life-long friends.

There are many other little idiosyncracies of the Korean culture, such as this, which should be learned when working closely with them. Learning the intricacies of Korean culture will be extremely valuable during the negotiation process.

The successful negotiator should strive very early in the negotiation phase of a project to gain the respect and confidence of the Korean counterpart. Korean people are intelligent, resourceful, and very perceptive. If you try to give them a smoke screen, they will normally see right through it.

Your confidence with them will be shaken and your chances for concluding a successful MOA will be reduced. A negotiator who is not trustworthy will be considered offensive by his Korean counterpart. Loss of respect means that the air of cooperation and meaningful communication, so necessary during a negotiation, will be impossible to maintain.

Possibly the best characteristics that a US negotiator can have when dealing with the Koreans are fairness, reasonableness, and consistency. It is necessary to have a professional conduct at all times. Adhering to the basic rules of protocol and social intercourse is so important when doing business in Korea.

Some amount of subtle flattery among negotiators is an acceptable business tactic and should be expected. Although you can count on the ROK JWG chairman to be hard-nosed negotiator, he will always maintain his professional bearing and composure. As a representative of his government, the US JWG chairman should strive to exude a sense of confidence in his abilities, while still respecting the Korean viewpoints. The most successful US negotiators combine a wide range of talents with a thorough understanding of their Korean friends' traditions and culture.

As mentioned previously, to be assigned the task of negotiating an MOA as the US JWG chairman is a demanding and challenging assignment. It can also be a very rewarding experience. The CDIP program directly affects the defensive posture on the Korean peninsula. By actively participating in this program, a negotiator knows that a definite contribution is being made during a tour in the ROK. A sense of pride and professionalism is gained from having successfully represented the government in a foreign land. Although sometimes frustrating and time consuming, the successful negotiator of a major project under the CDIP program will probably consider this the highlight of a tour in Korea. □

situation report

departments

ELF PROJECT DELAYED - The Navy's project for an Extremely Low Frequency Radio Transmitting System for communications with submarines has been delayed. On 31 January, the Navy was enjoined by the Circuit Court for the Western District of Wisconsin to halt construction of all facilities for the ELF System until a Supplemental Environmental Impact Statement (SEIS) is filed considering new ELF studies made since the original Environmental Impact Statement was filed in 1977. Construction of the facilities in Wisconsin are well underway. Bids for the Michigan facilities were to be opened by NORTHDIV on 16 February. Based on a national security need, the Navy has requested the Court reconsider the "stop construction" order to permit construction to continue while the SEIS is being prepared. It is estimated preparation of the SEIS will take 9-12 months. Environmental Assessments for construction at both sites have been completed and filed.

(NAVFAC Code 04)

COMMAND MANAGEMENT GUIDANCE - In a recent decision by the Chief, CMG-84 has been extended, as currently published, and redesignated "CMG-85". In his letter notifying the Command of this action, the Chief stated that "we are making progress toward implementing the guidance set forth in CMG-84, but we still have a way to go." He highlighted the need for simplification of our management processes, and the need for "personal involvement" by managers in the work at hand, as the primary means of contributing to organizational viability and effectiveness. He stated that "the manager's environment is becoming increasingly pervaded by automated systems of every kind and purpose," and that "we must make certain that we use these to enhance our personal involvement, not obviate it."

(NAVFAC Code 01)

NMCB-133 PELTIER AWARD - U.S. Naval Mobile Construction Battalion ONE THIRTY-THREE is the recipient of the Peltier Award as the outstanding active Naval Construction Force unit for FY83. This is the second consecutive award for NMCB-133 and is indicative of the high qualities of leadership, professionalism, and achievement evidenced throughout homeport and while deployed to Roosevelt Roads, Bermuda, Guantanamo Bay, Andros Island and Vieques Island.

(NAVFAC Code 06)

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Seabees Construct An Advance Base Functional Component System

By EACS Timothy F. Buckley, USN
P.E., Calif.

The Naval Construction Force is the generic name given to a deployable naval organization capable of constructing, maintaining and operating various advance base facilities in support of Naval and Marine Forces. Made famous by the late John Wayne in the movie "The Fighting Seabees" and written into history by the exploits in World War II, Korea, and Vietnam, the Naval Construction Force or the Seabees stand ready to carry out their assigned mission.

Combat places heavy demands on mobility. This mobility requires a very versatile construction force. Constructing everything from bunkers to advance industrial facilities to support the fleet.

The mission of the Naval Construction Force is to construct, operate, and maintain operational logistics, underwater, and ship to shore facilities. Also provide military and assault construction, disaster recovery operations in peacetime and wartime, and civic action teams for the Navy's civic action programs or those of other government agencies.

Seabees accomplish their readiness mission constructing something called the Advance Base Functional Component (ABFC) System. In fact, the elements that make up the Naval Construction Force are components of the Advance Base Functional System. Just what is this system; how does it fit into our current readiness posture and what is the Seabees role?

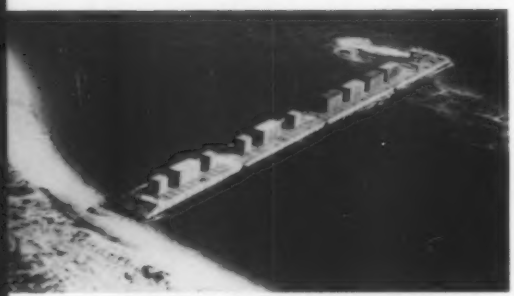
Digress for a moment and look back to post World War I. E.B. Porter, in "Seapower," covers in depth the policies of the Navy in that era and discusses "Plan Orange." Plan Orange was devised to project American military power across the Pacific Ocean through many Japanese-held islands to rescue the Philippine Islands.

A Hospital Corpsman aids a wounded Seabee during a field exercise.

The major problems were how to bring superior air power against the land-based air power of Japan; how to assault the strongly defended islands; how to defeat the Japanese fleet and how to free the United States fleet from dependence on rearward bases.

The solution, to build up the fleet and air power; the same problems military planners encounter today. Develop an amphibious doctrine far superior to that of the World War I era. Develop a logistics doctrine by which the fleet and other forces could carry the logistics bases forward with their advance. Plan Orange was revised and updated not only to include the capture of strategic Pacific islands but the rapid construction of logistics bases to service the advancing fleet.

The Air Detachment assembled in front of fifty-five aircraft loads of Seabee equipment and supplies.



A water jet-propelled pontoon lighter beached for off loading.

Roll-on roll-off operations in amphibious objective area with specially-equipped fork-lift.

"Galapagos Units" were the first advance logistics bases. They were derived from the plans and bills of material for a seaplane base constructed in the Galapagos Islands. The Chief of Naval Operation instructed the Bureau of Naval Air (now Naval Air Systems Command) to develop plans for an operational seaplane base in the islands to be utilized to guide other commands to procure supplies and equipment necessary to construct and operate the base.

This is the same dominant and contributory command concept we use with today's Advance Base Functional Component System. The plans for the original seaplane base were reworked; for similar bases in other strategic locations in case there was a requirement for rapid construction of a logistics base.

The rework was mostly in the construction requirements. Therefore, the bulk of the requirements fell directly on the Chief of Civil Engineers and the Bureau of Yards and Docks (now the Naval Facilities Engineering Command) to devise construction plans for the reworked Galapagos Units.

The Galapagos Units gave way to Lions, Cubs, and Acorns. They were large logistics bases, small logistics bases, and air bases respectively. An Advance Base Depot was established at Davisville, Rhode Island, to receive, package, mark and ship the units. The construction force that accompanied these units became today's Seabees.

As the war progressed, the basic Lion, Cub, and Acorn Units were reworked into a variety of logistic bases. At one time there were over 70 volumes of planning data weighing more than 250 pounds. From this beginning it became apparent to the planners that a significant saving of time and material could be realized if equipment, personnel, and equipment required to perform certain functions were placed in standard units.

From its beginning with the Galapagos Units the ABFC System has evolved into a multi-million dollar system of logistics, administrative, ship repair, airfields, or any conceivable advance logistics base that may be required.

The components, facilities, assemblies, and personnel manning requirements are found in the Advance Base Initial Outfitting List. The components, facilities, and assemblies can be ordered by a single Navy Stock Number. Therefore, after the War Planners have determined what type of advance logistic base is required they can literally order from the shopping list. By adding or deleting assemblies from facilities, adding or deleting facilities from components, or combining components together, any type of advance logistics base can be assembled.

After the initial assault, building the combat power from zero capability to full striking force as the attack moves to the final object will require tremendous logistics. By prioritizing the construction of various assemblies, facilities and components, the area commander can ensure the best logistic support will be provided.

To ensure the ABFC System will provide the necessary support, each system commander provides technical support. A system of dominant and contributory commands is utilized. That is to say, the dominant command for anything to do with ship repair would be under the Naval Sea System Command.

The structures required to house the repair facilities are controlled by the Naval Facilities Engineering Command, who is in the contributory command role. Naval Mobile Construction Battalions required to construct the base are under the Commander Construction Battalions Atlantic or Pacific Fleet. They supply the construction personnel and equipment to construct the advance bases.

The Naval Construction Force has eight active Naval Mobile Construction Battalions and 17 Reserve Naval Mobile Construction Battalions. At present there are two amphibious construction battalions, one in each fleet attached to the Naval Amphibious Force. There are also numerous support, planning, and training activities to guarantee the Seabees shall be ready in the event of any contingency situation.

The Naval Civil Engineering Laboratory at Port Hueneme, California, for example, is developing a system to offload containers in the Amphibious Objective Area. This system gets the war materiels transported to the Amphibious Objective Area by Military Sealift Command Container Ships ashore to support the invasion.

Amphibious Construction Battalions receive training in the assembly and operation of this system along with the traditional beach landing operations.

The Laboratory is also developing a system that utilizes satellite input and computers, including small rugged field computers to determine the best location for various Advance Base Functional Components in the Amphibious Objective Area, determine the amount of earthwork required in the construction of the component, and the time required to construct the component.

This will aid the Construction Battalions to determine what special training may be required and what tailoring may be necessary to expeditiously complete an Advance Base Functional Component System component. The battalion may need to add a rock crusher or concrete batch plant to its inventory of construction equipment prior to deploying.

The two Amphibious Construction Battalions are a very important part of the Naval Construction Force. Other than the technical training the Seabees receive at the Naval Construction Training Centers they receive training that includes such operations as assembly and maintenance of various ship to shore transfer systems, beach salvage operations, installing buoyant and bottom laid ship to shore bulk fuel systems, and limited construction in support of beach improvement.

Mobile Construction Battalions rotate to and from deployment sites on a 14-month cycle. Seven months in homeport, located at Gulfport, Mississippi, for the Atlantic Fleet Battalions or Port Hueneme, California, for the Pacific Fleet Battalions and seven months deployed to various locations throughout the world.

While in homeport the Seabees receive training in several areas. Technical Training is training in construction skills such as carpentry, plumbing, earthwork, etc. It is conducted at the Naval Construction Training Centers located in each homeport location.

Technical Training is necessary to ensure today's Seabees can construct and operate Naval Support Facilities such as Diego Garcia or Advance Logistics Bases. They receive training in Disaster Recovery Operations.

The training covers chemical, biological and radiological decontamination and rescue techniques and other related subjects needed to put a base back in operation after natural or man-made disasters.

Contingency Training is related to disaster recovery. It covers the construction of expedient structures such as bolted steel tanks, steel and wooden observation towers, erection of the tent camp, and rapid runway repair.

Readiness Training covers Mobilization Training (each battalion is required to mount itself out by sea or air).

Military Training is training in combat skills to make sure the Seabees can defend themselves and what they are building. During a contingency operation a battalion transports a table of allowance consisting of 266 pieces of construction and automotive equipment, their tent camp, and general cargo weighing 5.3 million pounds. Readiness Training is culminated with a flyaway of the 90-man Air Detachment and full battalion field exercise.

The continuous training of the Construction Battalions while in homeport in the above mentioned areas and readiness exercises while deployed ensure the Seabees are ready to meet any contingency.

The Naval Facilities Engineering Command reviews and updates the Advance Base Functional Component System.

The Naval Civil Engineering Laboratory is researching new amphibious embarkation methods and new or improved assemblies for various Advance Base Functional Component System facilities.

These are but a few of the many operations conducted by the Navy to keep the readiness edge honed. □

FORTY FIVE NEW OFFICERS COMPLETE BASIC

Forty-five new officers joined the ranks of the U. S. Navy's Civil Engineer Corps on December 9, 1983, upon graduation from the Naval School, Civil Engineer Corps Officers, Port Hueneme, Calif., and have accepted assignments all over the world.

The class, No. 169, completed eight weeks of specialized training pertinent to the Navy's needs for shore installation engineering, public works management, and Seabee operations.

Seven graduated with honors: Ens. T. Michael Toole was the outstanding graduate. Six graduated with distinction: Lt. William K. Gray, Ens. Christopher V. O. Floro, Ens. Daniel W. Santos, Ens. Stephen N. Skidd, Ens. Gary L. Lester, and CW02 Conrad R. Spence.

Ens. Toole's photograph is indicated by (★). Those graduating with distinction are indicated by(●), and those entering Seabee duty by (†).

*† **Ens T. Michael Toole**
BSCE/Bucknell U.
to Port Hueneme, Calif.

Ens John E. Alexander
BSCE/Bucknell U.
to Pearl Harbor, Hawaii

† **Ens John T. Baker**
BSCE/U. of N.H.
to Gulfport, Miss.

Ens Anthony C. Boles
M. Arch/Cal. Poly., Pomona
to Guam, Marianas

(continued on page 30)

Ens Mark A. Bostick
BSCE/Clemson U.
to Crane, Ind.

Ens David J. Bowlin
BSCE/N.C. State U.
to Jacksonville, Fla.

Ens Douglas K. Brown
BSCE/U. of Lowell
to San Diego, Calif.

Ens Anthony J. Cox
BSCE/Clemson U.
to Pensacola, Fla.

Ens Eric L. Crump
BSCE/Virginia Tech.
to Philadelphia, Pa.

Ens William D. Daugherty
BSCE/Kansas U.
to Iwakuni, Japan

Ens Lee W. Davenport
B. Arch./Cal. St. Poly.
to Camp Pendleton, Calif.

Ens Steven R. Dupes
BSCE/U. of Fla.
to Fallon, Nevada

Ens Mark A. Eilert
BSAE/Kansas St. U.
to Adak, Alaska

Ens Christopher Floro
BSAE/U. of Miami
to Yokosuka, Japan

Ens Robert O. Gelteland
BSCE/U. of Wash.
to Lakehurst, N.J.

Ens Paz B. Gomez
BSCE/San Diego St. U.
to Roosevelt Roads, P.R.

Lt William K. Gray
MSE/Princeton U.
to Sasebo, Japan

Ens Juan M. Guerra, Jr.
BSCE/Stanford U.
to Vallejo, Calif.

(continued on page 31)

FOREIGN LABOR:

AN IMPORTANT CONTRIBUTION TO OUR CONSTRUCTION OVERSEAS

By Vincent D. Oneha
Contractor Labor Relations Advisor
NAVFAC, Pearl Harbor

Historically, construction in the overseas area has been significantly influenced by foreign labor. Whatever the circumstances may require, because of geographic location, economics or the lack of an indigenous skilled construction work force, foreign national labor has been an important contribution to our construction effort in the overseas areas.

Contractors, whether U. S. or foreign, utilize to the extent possible labor that is indigenous to the area in which the construction project is located. If skills are not locally available or non existent, contractors have recruited employees from countries other than the host country. These employees are normally referred to as Third Country Nationals (TCNs).

Workers from a third country should not be imported when personnel requirements can be satisfied by local labor. If personnel needs in specific occupational categories cannot be satisfied, arrangements with the host government to permit importation of workers from other countries who are acceptable to the host government in the skills and numbers required may be employed.

The establishment or use of military bases and facilities by the U. S. forces in the territory of another nation is normally governed by the provisions of a treaty or other formal agreement. Such a treaty or agreement usually includes coverage of the subject of employment of foreign nationals.

In recent years several countries in the Pacific and Asian regions have exported labor to satisfy the needs of construction in the overseas areas. Countries in the region have exported labor for various reasons, as a temporary measure to ease underemployment; for foreign exchange objectives, due to a lack of skilled workers in the host country, or a more principled reason to learn up-to-date technology from foreign firms.

Whatever the reasons may be, many countries export labor. Among them are Thailand, Sri Lanka, Pakistan, Philippines, China, Korea and Bangladesh. Almost all programs to export labor overseas are government supported.

The Philippine Islands is one of the most important countries that exports labor. Hundreds of thousands of Filipino workers have been provided for overseas employment. Since 1975, the Philippine ministry of labor has been engaged in an energetic program to export workers with both employment and foreign exchange objectives.

A special Overseas Employment Development Board of the Labor ministry is charged with developing overseas employment opportunities, negotiating government - to - government agreements for the utilization of Filipino workers, and serving as a recruiting agent for overseas employers.

In addition, a large number of private employment agencies and construction companies have been licensed to recruit workers for overseas jobs with employment contracts approved by the labor ministry.

Contractors must abide by all applicable laws of the foreign nation in employing TCNs for work overseas. As an example, employment contracts for employees recruited in the Philippines must contain terms of employment equal to or above basic requirements of Philippine labor and social legislation.

The terms of employment include guaranteed wages for regular working hours; overtime pay; free transportation from point of hire to site of employment and return; expenses for travel documentation; adequate board and lodging facilities; free emergency medical and dental treatment facilities; just cause for termination; workers compensation benefits; war hazard protection; including life and accident insurance coverage during the term of employment; immediate transportation of the workers' remains and property in case of death, and remittance of the workers' salaries allowances and/or allotments to his beneficiaries through the Philippine banking system.

Wages earned by workers in overseas positions are several times above the amount they would receive at home.

While these requirements may vary from country to country the terms of employment contracts are similar for TCNs employed overseas.

Compensation received by TCNs in overseas positions are several times above what they would receive at home. The wages, although higher than what they would receive in their home country, are still considerably less than that provided U. S. workers or workers of some European countries.

There are no standard formulas for determining the proper wages for TCNs. In most instances past practice will determine the rate of the TCNs wages based on country of origin and the overseas destination. The availability of skills and the demand for their services determines the labor market wage range.

Wages paid foreign nationals in their home countries often involve a wide range of fringe benefits such as bonuses, transportation allowances, uniforms, family allowances and a variety of leave practices. TCNs working overseas have a basic wage and fringe benefit package which includes base wages, overtime, extended work hours and a limited holiday and leave practice.

Third Country Nationals are usually employed in foreign countries overseas. Under certain circumstances foreign nationals have been employed in a United States Territory. This has occurred in Guam where, because of widespread natural disasters caused by typhoons, extensive repair work was required.

There were comparatively few resident Guamanians who had been trained for construction occupations. The existence of this labor shortage provided for the entrance of non-immigrant aliens.

Non-immigrant aliens have been admitted under Immigration and Naturalization Service regulations through a labor certification process. In order that the wages and working conditions of U. S. workers were not adversely affected by the use of such aliens and to see that qualified U. S. workers are not displaced by aliens, regulations containing adverse effect rates for construction occupations on Guam were established.

The use of foreign national labor is not without problems. In isolated areas one must consider the compatibility of the different ethnic groups, diets, language, cultural differences, and associated immigration and transportation problems.

Productivity of foreign nationals is often debated without any conclusive evidence. The workers' productivity will vary based on how industrialized the country of origin is, familiarity with power tools, use of American standards of measurement, and experience in using Western construction techniques.

In spite of problems recognized, thousands of Third Country Nationals have been utilized in the overseas construction program. Thousands more will be utilized, and must be recognized as a force in overseas construction. □

Lt. Michael L. Hill
BSME/USNA
to Pensacola, Fla.

Ens Timothy C. Johnson
BSCE/Union Coll.
to Vallejo, Calif.

Ens Ralph C. Johnstone
BSCE/U. of Kentucky
to Camp Pendleton, Calif.

Ens Kenneth H. Lacy
BSCE/U. of Tenn.
to Cherry Point, N.C.

Ens Beth E. Leinberry
BSChem.E/U. of Mass.
to Oakland, Calif.

Ens Gary L. Lester
to Guam, Marianas

Ens Adrian D. Lovell, Jr.
BSCE/U. of Fla.
to Subic Bay, R.P.

Ltjg George C. Matthews
BSEE/U. of Mo.
to Guantanamo Bay, Cuba

Ens John W. Mouritsen
M.A.Arch./U. of Utah
to Manila, R.P.

Lt Merritt W. Pedrick
BSCE/Penn St. U.
to Guantanamo Bay, Cuba

Ens Michael C. Puntenney
BSIEOR/UC Berkeley
to Subic Bay, R.P.

Lt. Jerome P. Rakal
BSME/USNA
to Patuxent River, Md.

Photograph Not Available

CW02 Johnny J Ruffino
to Bermuda

Ens Scott G. Rutledge
B. Arch./Va. Tech.
to Norfolk, Va.

(continued on page 32)

• **Ens Daniel W. Santos**
BSCE/U. of R.I.
to Orlando, Fla.

Ens Kelly J. Schmader
BSCE/Penn St. U.
to Colts Neck, N.J.

Ens William H. Shirk
BSCE/Penn St. U.
to Newport, R.I.

Ens Robert W. Siegfried
BSCE/Penn. St. U.
to Portsmouth, N.H.

Ens Stanley C. Sikes
BSCE/U. of Mo.
to Newport, R.I.

• **Ens Stephen N. Skidd**
BSChem.E/U of Conn.
to Colts Neck, N.J.

Ens Bradley R. Spangler
BSCE/Cal. St. Poly.
to Whidbey Island, Wash.

• **CW02 Conrad R. Spence**
to Sigonella, Italy

Ens Charles Torres
BSCE/Clarkson Coll.
to Patuxent River, Md.

Ens Kevin G. Vogelsang
BSCE/Santa Clara U.
to Camp Pendleton, Calif.

Ens Polly S. White
BSCE/U. of Va.
to Jacksonville, Fla.

Ens Bobby L. Williams
BSPE/U. of Tulsa
to New Orleans, La.

Ens Leo W. Williams II
BS/USNA
to Annapolis, Md.

readers' comments /questions

departments

Reader has a good point!

In reading the *Quarterly* (Air Force Engineering and Services), Fall 1983 issue, I was struck by the quality of the Air Force magazine, especially the technical content.

Certainly *The Navy Civil Engineer* magazine is comparable; however, I hope we are looking closely at adopting some of the Air Force ideas when they serve our interest and, of course, vice versa.

I have been impressed by the Air Force technical emphasis on practical, "how to" articles of use to their field personnel, their Kiplinger-style review of significant developments (i.e. Current Emphasis, Technotes, Cesmet tips . . .), the readability of their articles, and the amount of junior officer and civilian impact.

Capt. J. L. Clearwater
Commanding Officer,
NAVFAC, NORTHDIV

Thank you for your letter and interest. Yes, the articles you mentioned in the Air Force Engineering and Services *are interesting. We have been working on an article of similar nature that we hope to publish soon. We hope it will be as effective as the ones you mentioned.*

I just thought I would pass along to the Senior and Master Chief Petty Officers in the Seabees this information concerning the Navy's Senior Enlisted Academy. The Academy is located on the Naval Education and Training Center, Newport, Rhode Island.

I found the Academy challenging and informative. The small group method of learning is used. There were fifty students divided into five learning groups. The groups remained together for the nine weeks of learning. There were 137 hours dedicated to leadership and management. This included four major areas: group dynamics; internal and external motivation; and managerial theories.

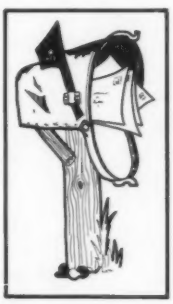
We received 42 hours of oral and written communication skills. The oral assignments covered a variety of subjects from national interest, policy, and power; Navy programs; and pride and professionalism. The Academy has an excellent guest speaker program, experts in their chosen fields, which amplifies the classroom studies in national security affairs, defense economics, and Navy programs. When you complete these subjects you will have totaled some 115 hours of study. In addition to sharpening your scholastic skills, you condition your body with 37 hours of physical training.

You will enjoy the social life at the Academy and Newport. The two major events are the Dining In and the Graduation Social. If you have a chance to attend the Senior Enlisted Academy, do so. See your career counselor for more information.

EACS Timothy F. Buckley, USN

Thank you for taking the time to pass along this information.

Got a question, comment, suggestion, or gripe? Please send it to:



Editor, Code 20M, CECOS,
Port Hueneme, CA 93043

Have you considered the

RESERVES?

In addition to the opportunities for challenging and rewarding careers in the active duty Navy Civil Engineer Corps, there are similar career opportunities in the Reserve Civil Engineer Corps.

If you are a young construction professional in civilian practice or civil service, or are a graduating engineering or architecture college senior who has already selected a civilian career path, the Reserve CEC may have a place for you as a commissioned officer.

Qualified young professionals have the chance to achieve tremendous personal and professional satisfaction through . . .

- Direct appointment as an Ensign, Civil Engineer Corps, United States Naval Reserve
- Challenging assignments within Reserve Naval Construction Force units in your geographic locale, in areas parallelling active CEC duty in the Seabees or in facilities management
- Annual active duty for training that is meaningful and rewarding
- Development of leadership and technical skills that will carry over directly into your civilian profession
- New and lasting friendships and associations with other top-notch construction professionals
- Pay and responsibility that increases as you grow and advance
- A Naval Reserve retirement package for a little something extra in your old age
- Finally, and most importantly, the pride in knowing that you are helping preserve the freedom of your country as you grow in your profession

Call now (collect)...

Here's what you can do . . .

If you are a young engineer or architect, male or female, please call the the Reserve Representative listed below. Or, contact an Active Duty EFD Accessions Officer listed on the inside front cover for further information and details. . . You and the Reserve Navy Civil Engineer Corps may be meant for each other.

LCdr. Pete Saunders
Eastern Region, RNCF
Bldg. 662, Naval Base
Philadelphia, PA 19112
Phone: (215) 897-5831/34
AV 443-5831/34

LCdr. Howard Huggins
Southern Region, RNCF
Naval Base
Charleston, SC 29408
Phone: (803) 743-2650/4322
AV 794-2650/4322

Senior Chief DeQuay
Central Region, RNCF
Bldg. 1, Naval Base
Great Lakes, IL 60088
Phone: (312) 688-6955/6
AV 792-6955/6

LCdr. Russ Pabarcus
Western Region, RNCF
1220 Pacific Highway, Suite 203
San Diego, CA 92132
Phone: (619) 235-3401/2
AV 958-3401

Moments in history

Seabee wipes out enemy pillbox with 'dozer

Aurelio (Ray) Tassone, Fireman 1st Class, as he appeared in 1943 when he single-handedly knocked out an enemy pillbox with his bulldozer. This action won Tassone the Silver Star.

...it happened 41 years ago

From the Treasury Islands attack have come many stories of Seabee workmanship. One, above all, has become a South Pacific legend — a lone bulldozer operator had wiped out a formidable Japanese gun emplacement!

Falamai was the principal native village on Mono Island, largest of the tiny Treasury group. Its thatched huts had been Japanese headquarters since 1942.

As Allied invasion forces worked feverishly to consolidate their precarious positions immediately after the initial landings on October 27, 1943, crackling rifle fire came from pillboxes along the shore.

The Japanese had the beach "taped." Mortars from the jungled hills overlooking Orange Beach laid a deadly pattern on and around the unloading LSTs. Potent Japanese mountain pieces added their quota of death and confusion to the crowded and confused beach scene.

Falamai peninsula was the main initial objective of the Allied invasion. Here, Lt. Charles E. Turnbull and his hardy band of 87th Seabees went to work with two D-8 bulldozers.

Sam Rajala, Dewey White and Aurelio Tassone kept the 'dozers going continuously. Leonard Friedman was there, too, when anything went wrong mechanically.

Emplacements were quickly dug for strategic pieces being unloaded. However, one 90-mm. gun had been in position only a few minutes when Japanese artillery completely demolished it.

The main body of New Zealand infantry had immediately pressed inland to silence the enemy's heavier weapons. The inexperienced 87th builders surprisingly found themselves in the hottest spot of the entire beach and right there they were forced to remain and work while the battle raged.

An hour after the landings, a previously undetected Japanese pillbox, approximately 75 feet from the LST bow doors, became alarmingly active. Fire from this point became stronger and stronger, inflicting casualties on the invading forces and seriously hampering operations.

Aurelio Tassone, Flc, cutting a road through the jungle to the rear of Falamai village, spotted the enemy strongpoint and quickly sized up the situation. It was apparent that the unloading party was defenseless as the LST guns could not be depressed enough to bring the pillbox under fire.

Turning from his prosaic road-building, Tassone threw his machine in low gear and bore down on the coconut-logged bunker from the rear. Snipers from nearby huts concentrated on the lonesome figure atop the snorting 20-ton steel monster. Blade raised as a shield, the clanking tractor roared on like its armored offspring, the tank.

Lt. Turnbull and a few mates covered Tassone's wild charge as best they could, pinning down the most active snipers. At the precise moment, the 87th operator expertly dropped his blade and the pillbox collapsed.

Methodically, as if he were smoothing a rough spot in a road, Tassone bladed earth over the wreckage. His mission was accomplished.

Some time later, after the roar of battle had moved farther inland, the mass grave was shoveled open. Twelve bodies and a large new gun were exhumed.

The article above was reprinted from the yearbook of the 87th Seabee Battalion of 1943. The poor quality of the photo above is attributed to the fact that it was taken directly from the pages of the year book. The editor thanks Captain James Douglas, CEC, USN (Ret), the last Skipper of the 87th Seabee Battalion on Okinawa, for submitting the article. In his letter, Captain Douglas stated, "I was proud to be part of these 'Fighting Seabees'."

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